

MANUFACTURERS' RECORD.

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Manufacturers' Record.

RICHARD H. EDMONDS, President.
THOMAS P. GRASTY, Vice-President.
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COPY FOR ADVERTISEMENTS.

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advertisements) should reach us
Saturday Morning to insure insertion
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Southern ports seem likely to make a record for 1901 as exporters of bread-stuffs. During the eleven months of the year the value of these exports has increased at all ports from \$218,409,371 to \$252,567,046, a total of \$34,157,675. The increases at Southern ports have been at Baltimore from \$29,833,283 to \$39,444,731, Newport News from \$14,214,985 to \$16,505,457, Norfolk from \$3,151,928 to \$3,594,759, Galveston from \$8,805,084 to \$11,786,953, Mobile from \$1,317,770 to \$1,601,555, and New Orleans from \$16,081,530 to \$26,528,355. The total increase at Southern ports is \$26,147,230, against a net gain at all other ports, the Pacific coast included, of \$8,010,445 only.

Regarding a report that one of the leading timber men of the State is preparing to operate a furniture factory in Holmes county, Mississippi, the Lexington Progress says that the two wagon factories in the county find a ready market for their product made from timber almost at their very doors, and that several mills sawing hard-wood lumber are flourishing, points to the vast resources of timber in Mississippi, and contends that the oak, walnut, hickory, ash, poplar and gum are too valuable to be thrown into ditches or burned in making pasture land. The Progress wants more woodworking factories in Mississippi.

The monthly summary of commerce of the Treasury Department for October, recently issued, contains a study on colonial administration, which is the result of more than a year's careful observation and investigation by Mr. O. P. Austin, chief of the bureau of statistics. The publication is arranged by a summarization of the studies and conclusions, a table of contents and a course index, to be a work of ready reference, and in view of the importance of the subject at this particular time, will undoubtedly prove convenient and useful.

READY TO RECEIVE SCHOLARSHIP BOYS.

The North Carolina College of Agriculture and Mechanic Arts.
West Raleigh, N. C., December 14, 1901.

Editor *Manufacturers' Record*, Baltimore, Md.:

Dear Sir—I have read with great interest and pleasure your address before the Southern Cotton Spinners' Association at Atlanta. The plan of endowing scholarships for technical education is admirable, and I hope to see it indorsed practically by many of our successful manufacturers.

I have no doubt that our colleges will do their part. Speaking for this college, I will say that the college will supply free tuition and lodging to all needy lads who may be recipients of scholarships established for this purpose. The sum of \$125 will be sufficient to meet all other annual expenses, including board, fuel and lights, clothing, books, tools, drawing instruments, etc.; in fact, a very economical lad, who is willing to work during spare hours, could manage to get through under this arrangement with \$100 per annum.

It is beautiful to see how anxious our boys are to get an education and to help pay for it by work. We paid out last year about \$2400 in small sums to working students. If we had had it, we could easily have paid out \$10,000 the same way. One of our students arrived here at the beginning of the session last year with only \$30. During the year he received no money, except as wages for labor performed during spare hours. At the end of the year, having paid all his expenses, he went home with \$27 in his pocket. He is with us again this year, and has brought his brother, who is equally industrious and thrifty. Of 335 students on our roll, full 300 are of this sort. On Saturdays almost every agricultural student in the college spends the entire day working on the farm. We give no compensation for such work, as it is part of our instruction. The work which we pay for is done at odd times, during play hours, and is the sort of work that we would hire laborers to do. The two great needs of the South today are industrial education, to provide skilled labor and technical knowledge, and postal savings banks, to stimulate thrift and economy and provide capital.

The white boys of the South are by no means lazy. They are ready, willing and anxious to work, but they do not know how to do skilled work; and I regret to say that there is not adequate appreciation, either by our legislators or by philanthropists, of the necessity of industrial and technical education.

I hope your excellent address will be widely disseminated.

Yours truly,

GEO. T. WINSTON, President.

The Race Problem.

The Manufacturers' Record is not disposed to discuss any phase of the question known as the race problem unless it have a bearing upon the practical work to be done for the solution of that problem. It believes that continued agitation of topics concerning the political and civic status of the negro in the South is harmful to the country as a whole, more harmful to the white people of the South, and most harmful to the negroes themselves. When, however, a man of the eminence of Mr. Edward Atkinson, as an authority in statistics, undertakes to handle this subject, the Manufacturers' Record cannot refrain from publishing his deductions, as it does on another page of this week's issue. It must be understood, however, that the Manufacturers' Record recognizes that there is a wide divergence of honest opinion on this subject, an indication of which is given in an article by Mr. Edward Ingle compared with that of Mr. Atkinson.

The Manufacturers' Record believes that many mistakes have been made in dealing with the freedmen, and that one of the gravest mistakes has been the policy, under the auspices of the national government, of treating the negro as if the only difference between him and the white race of the country was the color of his skin. It believes that the plan suggested by Mr. Atkin-

son, if carried out, would be only adding to the mistakes from which the negro is suffering, but it takes pleasure in presenting his views, that they may be studied by thinking men.

Energetic New Orleans.

New Orleans seems to be equipping itself for a vigorous effort to advance its industrial and commercial interests. The recently-organized Progressive Union, which has been a factor in civic development, is planning, first, to secure 1000 subscribing members, and with their support to induce the investment of outside capital in the city and State, the establishment of industrial enterprises and the encouragement of immigration of desirable persons. These things it proposes to do through wide advertisement of the natural and acquired advantages of the city and State, through frequent publications and through a working bureau in charge of the most efficient, broad-minded and progressive men who may be commanded by the funds at the disposal of the Union.

Another organization of the city, the New Orleans Maritime and Merchants' Exchange, Ltd., recently reorganized, is also bestirring itself in efforts to promote the city's prosperity on its special lines. The Manufacturers' Record has already alluded to the periodical which the exchange is publishing under the editorship of its alert secretary, Mr.

Fred Muller, and at its annual meeting last week it was reported that during the year the membership has more than doubled, and has been active in furthering public and private measures which may aid the export and import business of the city.

These two bodies working together are bound to accomplish definite, practical good. They are receiving the cordial support of the New Orleans press, the Times-Democrat insisting that every one of the 12,000 business houses in the city are interested in the objects of the Union, and that the situation is most auspicious; that the opportunities were never better, and that not a moment should be lost in taking advantage of them. This is the kind of spirit which should prevail in every Southern city.

Mr. Carnegie's Offer.

It is hoped that there is truth in the report that the United States government will decline to participate in the administration of the fund of \$10,000,000 offered by Mr. Andrew Carnegie for the promotion of higher education in the United States. The ostensible reason for the declination from the congressional standpoint as reported is a poor one—the fear that the government might be embarrassed by even the slightest connection with what is popularly known as the Steel Trust, represented either in the securities tendered by Mr. Carnegie or in the proceeds of their sale. Of course, in the face of obvious facts, that is an absurdity. It looks too much like a play to the galleries. But even an absurd reason for a declination is sufficient, if it may prevent the government from committing itself to a scheme full of great danger for the cause of real education in the country.

As a matter of fact, there are enough institutions in the United States proposing to advance the cause of higher education to meet all the legitimate demands of the kind that may arise within the next fifty years. Some of them go very little beyond proposing. They have not the financial equipment or other facilities needed to carry out their honest purposes. Others are wealthy, well established, with capable faculties, and are showing their faith by their works. But taken altogether, the superior and inferior, they constitute rather a top-heavy climax to the imperfect, misdirected and misdirecting educational systems of the country, and one of their most valuable functions, perhaps, is to indicate the inadequacy of secondary and primary schools to meet successfully the problems which have been created through an overzealous promotion of a confusion of education with book knowledge, whereby parts of the American brain have been trained at the expense of the others, and at the expense of the hands, the feet and the digestive organs.

All of the so-called higher education in the world, all of the opportunities

for ease and comfort in original research and investigation will be sadly handicapped as long as the fundamental education of the people be neglected, as it is neglected, in spite of an increasing number of schools and colleges and a lengthening list of studies, in spite of more and more complicated statistics.

At the same time, disinterested observers, that is, men who have no axes to grind, cannot escape an impression that this scheme of a great national or central educational sanctum sanctorum at Washington, however sincere its many promoters may be, has within it the germs of not a little self-seeking and ambition to promote individual ends. Indeed, there is a possibility that there may in time arise through it and in it a compact body of self-constituted arbiters as to the proper definition of men of learning, which might be effective in obscuring real, though modest, talent, and honest, though earnest, endeavor, to the advantage of men who live and move and have their being in mutual adulation and advertisement not entirely free from quackery. The thing has happened already in this country, and the Washington scheme has apparently nothing about it which may guarantee immunity for it from the paralyzing touch of individuals whose reputation as authorities might be in inverse proportion to their real qualifications, and whose attraction to such an opportunity is as inevitable as is the gathering of buzzards to the carcass. The stamp of government approval of the scheme would naturally tend to strengthen such educational adventurers in their position in this country and abroad, and would undoubtedly be detrimental to the cause of American education.

The Manufacturers' Record has been glad to note the work which Mr. Carnegie has been doing for public libraries and other aids to education in many parts of the country, but it believes that his latest proposition is a mistake, especially if it involves the United States government as a trustee of his \$10,000,000. His plan, despite the rather hazy interpretation of it which has been made public, looks like a contradiction of the economic policy which, carried out in his business, has enabled him late in life to be liberal with his millions. That policy has been one of concentration of energy and money, to the elimination of the unfit and weak. This one seems to look to an uneconomic employment of both qualities in the opposite direction. If Mr. Carnegie were to distribute the \$10,000,000 among two or three colleges and universities of the country which have already accomplished so much of real value in behalf of higher education, he would give a practical and far-reaching impetus to the cause he would aid. Better still would it be for him to give \$1,000,000 to each of ten States which are most crippled for funds to give their children proper primary education, insisting at the same time that the money should be spent for education, and not for mere teaching school and hearing lessons.

Virginia on the Move.

In his last message to the Virginia general assembly Governor J. Hoge Tyler asks that body to make provision in connection with the St. Louis Exposition in 1903 for a suitable display of Virginia's natural resources and its industrial accomplishments. This, he contends, will help the State to secure settlers of the best kind, of the kind

that first cleared her forests. At the same time he urges a proper celebration in 1907 of the 300th anniversary of the founding of English America at Jamestown. He cautions against extravagance in laying out grounds and raising buildings, and calls for a practical presentation of what the State is and what it may be. The movement for an exposition in 1907 has been quite active in the Tidewater section of the State, particularly among the cities fronting upon Hampton Roads. After a bit of preliminary skirmishing for position these cities have come together with a practical plan, and are now face to face with a desire on the part of Richmond to have the exposition within its borders. It is sincerely hoped that all the cities interested in the plan may find a plane for common action, and that a persistent, sustained effort may be made during the next five or six years to insure a celebration worthy of Virginia's past, of its immense contributions to the growth of the United States, and of its wonderful future.

Coal for Europe.

Not long ago a contract was made for the delivery of 1000 tons of American coal to Sweden which had formerly been let to the Welsh collieries, and it is expected that American coal will soon be sent into the Thames. American coal has in recent months gone into Trieste to the extent of 46,000 tons in 1900 and 35,000 tons during the first six months of this year, into Norway, into Spain, into Berlin and into Genoa, and shipments of it to Marseilles have passed the experimental stage, the amount increasing from 7730 tons in the first six months of 1900 to 97,622 in the first six months of this year, the shipments of English coal at the same time having decreased from 451,752 to 389,303. From numerous other points in Europe are coming demands for fuel from this country, one importer from Dresden, indeed, having closed large contracts of purchase with American mines, and another of Verviers, Belgium, having undertaken a trip to the United States with a view to introducing American coal into his part of Europe. The trouble with South Wales coal miners is partly responsible for this activity to the benefit of American operators, but it is not really the cause. To understand this an article by Mr. F. E. Saward in the Engineering Magazine should be carefully studied. He finds the coming together by the community of ownership plan of the great coal-producing and coal-carrying railroads of the Eastern States one of the important factors, another the improvement of terminal facilities on the Atlantic and Gulf coasts, another the improvement of the Monongahela and Great Kanawha rivers, and another the reduced rates at which vessels could be had for transportation. And he finds that there seems to be almost an oversupply of foreign vessels waiting to engage in the coal-carrying trade from this side of the Atlantic. In conclusion he says:

The striking features of this development is the evidence it seems to afford that the ability of the workers in the United States is greater and the product per man and machine in excess of anything abroad; the output per employee in soft coal mining was 573 tons in 1900, while the product of each mining machine in use is put at 13,000 tons for the same year. There have been many causes for this, but none equal to the intelligent labor, coupled with the disposition to make use of the most advanced appliances in every line.

The export of coal from the United States would appear larger if the coal put on steam-

ers for bunker use was included. In Great Britain and France all coal for the use of steamers engaged in the foreign trade is included in the exports in the official returns, although separated as to items and quantities, while coal for the use of steamers engaged in the home or coasting trade is excluded. The principle in Germany is to exclude all coal put on board vessels to be used as bunker coal from the import and export accounts. In Great Britain the coal shipped for the use of steamers in the foreign trade amounted in 1899 to 12,226,901 tons, and in 1900 to 11,752,316 tons.

It is futile for American coal producers to think that "anything will do for the foreigner." Care should be taken to gain a good impression in the shipment of coal, if a success is looked for. United States exporters should devote their efforts to shipping first-class mineral, in lumps and duly screened, so as to compete successfully with the English product. As a rule, people on the Continent of Europe will be adverse to a change unless they actually find it is to their great advantage, both for quality and price.

TRAINING POOR BOYS.

Continued Endorsement of the Manufacturers' Record Plan.

Commenting upon the suggestion of the editor of the Manufacturers' Record that the South should give more attention than it has given to the training of its white boys for industrial careers, the Raleigh News and Observer says:

"Mr. Edmonds' observation is obviously true in North Carolina. Aside from the sons of the Holts, Steeles, Odells, Leaks, Williamson, Moreheads and other pioneer cotton manufacturers in North Carolina, most of whom are following in the footsteps of their fathers, very many young men of wealth and college education are becoming practical cotton-mill men. Among the successful young men who have lately gone into this business we may mention two sons of Hon. Julian S. Carr, a son of Mr. D. L. Gore, Mr. Webb, Mr. Ashe, Mr. Ruffin, Mr. Worth, Mr. McAllister, Mr. Fuller, Mr. Mebane, Mr. Borden, Mr. Royster, Mr. Schenck and many others of the brightest young men in the State. Most of them begin at the bottom. The textile school at the A. and M. College will give the opportunity of obtaining a textile education to many young men who had no opening to secure such instruction. The State that gives its sons the best educational advantages will be the State that will lead in industrial development as well as in literary and professional excellence."

The Southern Progress of Charlotte, N. C., says:

"The meeting of the Southern Cotton Spinners' Association in Atlanta the middle of November was a very profitable affair. The speeches of the first day have already set in motion plans which should result in great good to the South. The plan proposed by the editor of the Manufacturers' Record that each Southern mill company undertake to educate one deserving boy or young man along industrial lines is certainly a move in the right direction."

The Mercury of Huntsville, Ala., says:

"The statement from Richard H. Edmonds, editor of the Manufacturers' Record, that Alabama can produce iron cheaper than any other section of the world recalls that no one man has contributed more to the development of Alabama industries than Mr. Edmonds. He and his excellent paper deserve the esteem of every loyal and progressive Alabamian."

The Tribune of Rome, Ga., says:

"Mr. Richard H. Edmonds makes a strong plea for the technological education of the poor boys of the South. Georgia is immensely rich in undeveloped material. Give these poor boys a chance, educate them in the industrial and me-

chanical arts, and we will see our State go forward by leaps and bounds.

"Mr. Edmonds would have the railroads, the manufacturing establishments and corporations of other kinds take the matter up and establish scholarships, to be bestowed after competitive examinations. In order that the beneficiaries may not feel that they are objects of charity, the sums advanced for the schooling are to be repaid in easy instalments after the graduation of the pupil. In other words, the necessary money is to be in the nature of a loan on long time and without interest until the pupil is graduated and becomes a wage-earner. The details of the idea were clearly set forth in Mr. Edmonds' address. There are many reasons why it should be adopted, and none that we can conceive of why it shouldn't.

"The history of Georgia's technological school furnishes a striking example of the great need of more such institutions.

"The school in Atlanta is doing a noble work. It cannot turn out graduates fast enough to meet the demand, because the demand is so far in excess of the number it can accommodate.

"Here is a field for philanthropy that should receive more attention. We know of no greater. Let us have more schools of this kind, and so arranged that the poor boy can have its benefits."

Corrugated Cases Wanted in Mexico.

Mr. Courtenay De Kalb, Gerente General, Fernando Mining Co., San Fernando, Mexico, writes the Manufacturers' Record as follows:

"I have looked over the advertisements in your paper in vain for a metal cask. We have a little problem here in the shipment of granulated matte, and we are looking into all possible means of packing it for shipment. We intend trying shipment in old five-gallon oil cans, but the supply of these will be wholly inadequate, and if cans will do we will be forced to provide new ones on a fairly large scale. I would be very much obliged if you would ascertain where we could buy corrugated cylindrical sheet-iron cans, knocked down, such as are employed for gunpowder, and also where we could obtain the crimping machine for setting up these cans at our works. If the makers of such cans are not advertising with you, they should be doing so. The cans or drums which we would need should measure eleven inches diameter by seventeen inches long inside."

Weatherford's Progress.

In a letter to the Manufacturers' Record Mr. J. C. Wilson, secretary of the Weatherford (Texas) Board of Trade, writes: "Weatherford is to have a woolen mill. Work upon it will commence within thirty days. This mill will also make camel's-hair press-cloth. I think this has come to us as the result of the advertisement placed in your paper. Weatherford will give a bonus of \$5000, land for a building site, a sufficient water supply, an exemption from taxation for ten years to any concern that will build a \$200,000 cotton factory here."

Southern Gold and Silver.

Mr. George E. Roberts, director of the United States Mint, estimates that the value of gold produced in the country in 1900 was \$79,171,000, and of silver \$35,741,140. The value of gold produced in Southern States was Alabama \$100, North Carolina \$28,500, South Carolina \$121,000, Tennessee \$100, Texas \$1100 and Virginia \$3020. Alabama produced \$62 worth of silver, Georgia \$248 worth, North Carolina \$6944 worth, South Carolina \$248 worth and Texas \$295,988 worth.

THE NEW IRRIGATION WORKS IN EGYPT.

By Col. Alfred B. Shepperson.

[Written for the Manufacturers' Record.]

So many misleading statements have been published recently respecting the irrigation works under construction at Assouan and Assiout, on the river Nile, that a concise but accurate summary of the matter may be of interest to the public.

Egypt is an almost rainless country, the average yearly rainfall at Alexandria for the past thirty years being only about eight inches.

No crops of any kind can be grown except by irrigation, and the river Nile is the only source of water supply. The Nile is a swift and turbulent stream, and its muddy waters deposit upon the irrigated fields a sediment exceedingly rich in fertilizing properties.

The cultivable soil of Egypt consists only of the land which can be reached by the water of the Nile. Beyond this limit there is only a barren waste of sand and desert utterly impossible of cultivation. The Nile valley is quite narrow, ranging from five to nine miles in width—a mere ribbon of green verdure in a setting of brown sand. A "low Nile," therefore, has always meant "lean crops," and a failure of the flood a failure of the crops.

In order to hold back the water of the great river, so that from its banks and through irrigation canals it could be distributed to the fields as needed, the irrigation works known as the "Barrage," a few miles north of Cairo, were completed in 1863. They were strengthened and improved in 1890, and served their purpose for a time, but with the increase of the cultivated acreage north of Cairo and the extension of cultivation in the valley south of Cairo it was evident that larger and better facilities for water supply were needed. A contract was therefore made by the Egyptian government in February, 1898, with Messrs. John Aird & Co. of Scotland for the construction of extensive irrigation works at Assouan and Assiout, to be entirely completed by July 1, 1903.

The works near Assouan consist of a dam of stone masonry across the river, built on the first cataract and passing over the island of Philae (noted for its Temple of Isis). The wall or dam is built of stone, which is quarried nearby, and will be 2000 meters (about 6500 feet) long and ninety-two feet high, with a thickness of eighty-two feet at the bottom, diminishing to twenty-six feet at the top. The wall will be pierced with 180 openings with water-gates. When these gates are closed it is estimated that the surface of the lake will be about sixty-five feet above the low-water level of the river.

On the west bank of the river there will be a navigation canal with two locks, through which boats will pass up and down the Nile. It is thought that the lake created by the dam will extend southward from 100 to 140 miles. It will be the largest artificial lake in the world.

The works at Assiout, 200 miles north of Assouan, consist of a dam of masonry across the river 2709 feet long, with 111 openings with regulating gates about sixteen feet wide. There will be a lock 260 feet long by 52 feet wide. The lake made by the dam will probably extend southward about forty miles.

Sir William Garstin, the distinguished engineer in charge of the public works of Egypt,

reports officially respecting the effect of the works at Assouan and Assiout that

"774,000 acres of 'basin land' will be converted into 'sefi,' that is, that in this area

the present system of irrigation only at the flood of the Nile will be superseded by perennial irrigation." In an official report in January, 1901, he says: "It may be confidently hoped that, should no unforeseen accident or delay occur, both works will be completed and ready for the flood of 1902, or one year earlier than was anticipated or allowed for by the contract."

The Nile begins to rise about July 1, and the flood usually reaches its greatest height in October. Even should the works be finished in July, 1902, a year before the date specified in the contract, it is evident that the first cotton crop to be much benefited would be the crop to be planted in 1903, as cotton is planted in April and May.

It is not usual for contract work to be finished before the time agreed, and therefore it seems quite probable that the cotton crop of 1904 will be the first one to be affected by the new works.

The chief purpose of the construction of the works at Assouan and Assiout was to safeguard the crops of the land now under cultivation. There will doubtless be some extension of acreage, but this will be chiefly in upper Egypt, where the cotton is much inferior to that of lower Egypt, and brings a considerably lower price. Valued correspondents in Alexandria, who are prominent merchants and also largely interested in the cultivation of cotton, write me in respect to acreage that they "believe lower Egypt will benefit but little, as the area under cultivation has already reached a point from which an increase becomes difficult. Upper Egypt will benefit to a much greater extent, but the increase in acreage there will be gradual, as it will depend upon the canalization (or building of canals to take the water to the fields) which will be made. The chief object of the new dams was to remove any danger of scarcity of water for irrigation purposes in lower Egypt, and not in view of any very extensive increase in acreage."

The Nile delta (a triangular-shaped section of land, having its apex at the irrigation works near Cairo, and its base on the Mediterranean between the Rosetta and Damietta branches of the Nile) contains about 2,400,000 acres of cultivable land, and the valley of the Nile from Cairo southward about 3,000,000 acres. About 1,600,000 acres are now given to cotton, but wheat, barley, maize, rice, sugar, beans, onions and other crops are grown. The system of rotation of crops is general, and the new acreage, like the present, will be devoted each year to the crop which then promises to be the most profitable. Less than one-third of the cultivable land of Egypt is now devoted to cotton, and it is unlikely that cotton will get even this proportion of the increased acreage.

Egyptian cotton commands a much higher price than our upland cotton, because of its special adaptability to certain purposes and the comparatively small crops.

If the supply is largely increased, however, the price will inevitably decline, and this will curtail production.

There is not the slightest probability that the cotton crop of Egypt will ever add to the world's supply enough to appreciably affect the price of American cotton.

New York, December 10.

Regular shipments of Texas cattle to Liverpool have begun through Galveston.

THE RACE PROBLEM: ITS POSSIBLE SOLUTION.

By Edward Atkinson.

[Written for the Manufacturers' Record.]

The negro and his descendants are with us to stay. They cannot be removed, and would not be if they could. Their work is necessary to the full industrial development of a large part of our common country. They are citizens of the United States. The poor and ignorant among them are entitled to the rights of men equally with the poor and ignorant whites. These rights must be respected. They cannot be established by force or by pressure upon any State from without. The race problem is a national one, but its solution must be undertaken in each of the several States in which it has become an issue.

There are two forces in action by which the race problem will be solved. One is the industrial necessity to retain colored labor in many sections. Progress in agriculture, in the mechanic arts and in manufacturing can only be promoted and sustained in a community in which public law is paramount and in which it is sustained or supported by public opinion. Industry can only thrive in a community in which rights are maintained without distinction of color or race and among people by whom violence and wrong are suppressed, and by whom common primary and grammar schools are sustained in every townships, supplemented by high schools.

Already the more intelligent cotton manufacturers of the Piedmont section have learned that child labor and over-long hours of work in cotton factories are inconsistent with profit and will in the end retard true progress. They are making strenuous efforts to correct this evil of child labor in the factories without waiting for the force of public law and to secure uniform laws in the several States. It has also been observed that colored children who do not work in factories are eagerly attending school, while white children working in factories are deprived of education even in primary schools.

In mining and metallurgy, in the lumber industry, in preparing tobacco, in the cultivation and preparation of rice, in picking cotton and in many other branches of Southern work there are and can be no color lines or distinctions of race. I lately went through one of the largest establishments in the whole South, where 8000 men were occupied in building ships. I noted large numbers of colored men and many others of whom I could not tell whether they were colored or white—many strange faces. I asked the young engineer who guided me how many languages were spoken in that yard. He said, "I think every European language and every dialect of this continent." Gladstone once made the profound remark that "national injustice is the surest road to national ruin," and that remark will apply to sovereign States as well as to nations.

What, then, is the race problem? Where is it, and what is its cause?

The figures of the national census, special reports 103 and 106, issued within this month of November, and the advance sheets of the statistics of schools, disclose the fact that the race problem exists only where there is ignorance and illiteracy among very large numbers of both whites and blacks. The places where these evils exist and also the figures are disclosed. These figures suggest the true remedy to anyone who has a statistical imagination. Without such imagination all figures are dry as dust.

I have said that this problem is a national one, because if ignorance, illiteracy,

lawlessness and violence exist anywhere within our common country, either in sections, on the frontiers or in the congested slums of great cities, North or South, they affect the whole State body corporate like an abscess or a carbuncle on any part of the human body, making the whole body sick.

Their remedy is a national duty to the limit in which the nation may act by other methods than force, but the remedy is also a State and municipal obligation.

Although race prejudices exist in many places, the race problem is not an issue between North and South. It is not one that divides the former slave States from the former free States. It affects only a relatively small section of the South, dividing one part from the other by a very marked line east and south of the great Appalachian chain.

If we may attribute the race problem in its obnoxious aspect mainly, if not wholly, to ignorance and illiteracy, the remedy must be found in the extension of the common-school system. We must therefore measure the relative conditions in the several States in order to see what common schools have accomplished in the greater part of the country. If we are to seek a remedy in the extension of common education, we must first prove its efficacy. I think few will deny that the common school has proved to be the solvent of race, creed, language, status and condition over by far the greater part of our common country.

The standard of illiteracy in the census includes those who can neither read nor write. Doubtless some who can read, but cannot write, are compiled among the illiterate. The word "negro" includes all who are of negro descent.

The question may be asked, Are the census data of illiteracy absolute? Probably not; but if regard be given to relative illiteracy in its connection with the sums expended for common schools, of which the figures are compiled by the Department of Education from the official accounts of the several States, the census data may be accepted as relatively true, but subject to a very small margin of error such as affects all enumerations covering a very wide area and very large numbers.

A survey of the nation by the test of the illiteracy of white and black males of voting age combined discloses conditions that may be surprising. To my mind they give absolute assurance of the ultimate and not very distant suppression of ignorance and illiteracy.

In round figures the population numbered 76,300,000 in 1900, divided by origin as follows:

	Per cent.
41,063,417 native parents, white.....	53.80
15,687,322 foreign parents, white.....	20.55
10,250,063 foreign birth, white.....	13.43
66,990,502	87.78
8,840,789 Negroes.....	11.69
471,796 Chinese, Japanese and Indians.....	.62
76,303,387	100

The males of voting age, white and black, omitting Chinese, Japanese and Indians, numbered 21,102,142:

	Per cent.
Whites—Literate.....	17,781,856 92.40
Illiterate.....	1,254,287 6.60
	19,036,143 100
Blacks—Literate.....	1,088,340 52.70
Illiterate.....	977,049 47.30
	2,065,389 100

Do not these figures give evidence of the success of the common-school system in respect to whites when we find less than seven in a hundred men of voting

age who can neither read nor write? May we not take courage from these conditions, especially when we give regard to the fact that two white males of voting age in every five are of foreign parents or of foreign birth?

The evidence of success in common education is even more complete when we bear in mind that persons of foreign origin or of foreign birth constitute a mere fraction of the Southern population, but are spread all over the North, West and East, where the minimum of illiteracy is also disclosed. What is more significant is the fact that while six in every hundred voters born of native parents in the whole country are illiterate, only two in every hundred born of foreign parents are so classed, and only thirteen in every hundred of those are of actual foreign birth. The proportion of illiterate foreigners is a little less than the proportion of illiterate natives in one section, and that is the section where the race problem will be found.

On the other hand, is it not a most startling and encouraging fact that of the negroes of voting age, twenty-one and over, few of whom could have had any considerable instruction in schools, because the schools for colored children, while already well established, had not attained any considerable position before 1880, more than one-half can now read and write? What greater evidence of earnest purpose on the part of a race to improve its conditions could be given than this fact?

The imperfect census of 1890 disclosed the fact that out of 1,410,769 negro heads of families in the United States, 264,288, or nearly one in every five, owned their own homes or farms. Recent State investigations, especially in Georgia, prove that the proportion in number and value of property are steadily increasing. What does that indicate as to the capacity of the negro?

But encouraging as this aspect of the case is, there were yet within the nation in 1900 1,254,287 illiterate white males of voting age, 977,049 illiterate blacks of voting age, making a total of a fraction over 2,225,000 men of voting age who have never yet been reached by the common school.

Who are they? Where are they, and how have these men been so wronged?

Under our system a common-school education is not a privilege; it has become a duty to give it, and it has become a right to have it. All who have been deprived of common-school education have suffered wrong. What is the remedy?

This leads to the figures of distribution, compelling a division by groups of States.

Distribution by color and illiteracy combined develops three groups:

Group I. The Atlantic and Gulf Southern States (omitting Texas)—Alabama, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Virginia.

Group II. The middle or border Southern States, including Texas, Arkansas, Tennessee, Missouri, West Virginia, Maryland and Delaware.

These groups exist because the relative number of blacks in each group calls for such order.

Group III. All other States and Territories.

In Group I we find 16½ per cent. of the whole population, divided as follows:

	Per cent.
White.....	6,864,856
Negro.....	5,718,796
All other.....	14,189
	12
	12,597,841
	100

Only 1,150,000 more whites than blacks, and in some States and many sub-sections more blacks than whites. Sixty-five per cent. of all the negroes in the United States are in this group.

But this is not a true measure of the burden which falls upon the intelligent men of this section.

When we deal with males of voting age, twenty-one and over, the true source of the race problem may be disclosed. In Group I there are 1,637,177 white males, of whom 13.54 per cent., 221,794, can neither read nor write, and there are 1,237,341 black men of voting age, of whom 55 per cent., 681,342, can neither read nor write, or more than one-half. There are also 535,999 blacks of voting age who can read and write.

Therefore, out of a total number of men who can neither read nor write in the whole country numbering 2,231,320, we find in this single group over 40 per cent., 903,126, of the whites and blacks combined where only 16 per cent. of the population exists.

The responsibility for the control of these States falls upon only 10 per cent. of the whites of this country. In other words, about 1,400,000 whites of voting age in Group I who can read and write must govern, educate, employ and control 556,000 blacks who can also read and write, 681,342 blacks who cannot, and 221,794 ignorant and illiterate whites—1,459,136 in all of blacks and illiterates.

Let men of the North and West put themselves in the place of the intelligent men in these States and then pass judgment upon the race problem, trying to aid in removing instead of denouncing them for those evil conditions which the present generation has had imposed upon it from the past.

In this Group I, therefore, we find the maximum of illiteracy, both white and black. What wonder that there is a problem to be solved which is not wholly one of the races!

When we seek the cause, do not the school figures disclose it? The appropriations for common schools in these States are and have long been lower than anywhere else, and are very insufficient, as will presently appear.

We must now give regard to Group II, consisting of the States in which slavery formerly existed—Arkansas, Delaware, Kentucky, Maryland, Missouri, Tennessee, Texas and West Virginia.

In this group we find—

	Per cent.
Whites.....	11,740,221
Negroes.....	2,223,021
All others.....	3,066
	.03
Total.....	13,966,308
	100

Less than one negro to five white men, the total number of the negroes constituting 25.14 per cent. of the whole negro population of the country, 16 per cent. of the group.

On applying the test of illiteracy to males of voting age the figures are:

	Per cent.
Whites—Literate.....	2,735,554
Illiterate.....	284,373
	9.40
	100
Blacks—Literate.....	301,343
Illiterate.....	239,637
	41.30
Total.....	3,561,287
	100

It will be observed that the race question is not an issue in this group. On the contrary, many of these States are getting a great benefit from the efforts made in Group I to disfranchise intelligent black men. Texas, Missouri, Oklahoma and other sections of the Southwest, as well as Kansas and other Western States, are urgently seeking all the intelligent men they can get to work upon farms without distinction of color, dealing with them justly, and gaining industrially on the Atlantic Southern States, which are driving out their own citizens in a steady stream to their own loss and detriment.

But the figures of illiteracy of Group II, taken as a whole, do not do justice to some of the States included. In Missouri

the appropriations for public schools in 1870 and 1871 were only ninety-nine cents per head of population; in 1899 and 1900 they were \$2.52. In West Virginia in 1870 and 1871, \$1.26; 1899 and 1900, \$3.25. In Maryland in 1870 and 1871, \$1.53; 1899 and 1900, \$2.47. Texas, with its large reservation of public lands, has entered upon the line of progress: 1879 and 1880 school expenditures were sixty-five cents per head; in 1899 and 1900, \$1.47.

We may now turn to Group III—all the other States and Territories not included in I and II:

In this group we find—

	Per cent.
Whites.....	49,385,725
Negroes.....	896,972
Indians, Chinese and Japanese.....	457,607
	.92
	49,742,304
	100

There is a race problem in this group in respect to Chinese, but none in respect to negroes.

In the matter of illiteracy the white and negro males of voting age are divided—

	Per cent.
Whites—Literate.....	13,630,919
Illiterate.....	747,740
	5.20
	14,378,659
Blacks—Literate.....	231,598
Illiterate.....	56,070
	19.47
	287,668
Total, both races.....	14,666,327

In this group exists the minimum of illiteracy, both white and black.

Having thus compared the proportions of white and black of literacy and illiteracy, we may now deal with the latest appropriations for the support of common schools by groups in ratio to the number of persons of school age, five to seventeen, inclusive, in each group.

Let us first recall the per cent. of population in each group:

	Per cent. of all races.	Per cent. of whites.	Per cent. of blacks.	Per cent. of others.
I.....	16.59	10.24	64.70	2.35
II.....	18.31	17.46	25.14	.65
III.....	65.19	72.30	10.16	57.00
	100	100	100	100

The next table discloses the total population of each group, the proportion of persons of school age, five to seventeen years of age, inclusive, and the appropriation for common schools in each group:

Population.	Persons school age 5 to 17, inclusive.	Per cent. of school age to population.	Appropriations for the support of schools.	
			Per head of population.	Per person of school age 5 to 17.
I. 12,594,775	4,167,747	33.03	\$0.79	\$2.40
II. 13,966,308	4,365,599	31.26	1.75	5.63
III. 49,742,304	12,948,188	26.25	3.63	14.00
	21,481,534	28	\$3.00	\$10.71

It thus appears that in Group I, where the proportion of children is the largest, all but a fraction native-born, having never been subjected to the immigration of foreign adults, the appropriations are the smallest; while in Group III, where the proportion of children is least, owing to the enormous influx of foreign adults, the appropriations are greatest.

The total amount expended for schools, compiled almost wholly for the year 1899 and 1900 (but in some few instances, for lack of later returns, on the previous year), in the whole United States amounted to \$213,274,354. This is a larger sum in the aggregate and is larger per capita than the normal cost of the United States government for legislative and judicial charges, public works and buildings, postal deficiency, army and navy (aside from the extraordinary charges of the Spanish War), rivers and harbors and Indians. In other words, the normal cost of government, omitting pensions and interest, for twenty years prior to the Spanish War, was \$2.50 per head,

and the appropriations for schools, divided by the population of 1900, amount to \$2.80, to which ought to be added the estimated expenditures by universities, colleges, technical and endowed schools, amounting to \$100,000,000, making a total per capita expenditure of over \$4 per head of population, by far the largest part for colleges as well as schools being expended in Group III.

Yet large as this sum is, it is insufficient and will continue to be so until the expenditures for schools in Groups I and II are equalized with those of Group III. In what way and how soon can this be done? It would require at least \$80,000,000 more, carrying the annual expenditures to \$400,000,000.

In order that schools may be conducted, the first need is that suitable schoolhouses should be provided. In Group I there are over 4,000,000 persons of school age, from five to seventeen, inclusive, but for many years to come very few of these persons can remain at school beyond fourteen. Provision for about 3,000,000 from five to fourteen, inclusive, must be supplied sooner or later. This would call for an amount of capital far beyond the power of these States to supply. It would take at least \$60,000,000 to build and equip schoolhouses even at as low a rate as \$20 per pupil. Public-school houses in the North and West of a substantial kind cost from \$30 to \$75 per pupil in primary and grammar schools and over \$100 per head in well-equipped high schools.

But in the Middle West, in the Northern Mississippi valley and all over the Northwest in the new towns and cities, the big schoolhouse, usually of brick, is the first and most conspicuous building. Whence comes the capital? The answer is plain—mainly from the sections of public lands reserved by the nation for the purpose of establishing schools in each new Territory or State.

When the thirteen colonies became the thirteen confederated States, later constituting, with others, the Union, most of them possessed immense domains extending westward to the Mississippi river. These immense areas of the most fertile lands were transferred to the nation, and from them have been organized the great States of the Mississippi valley east of the river. In most instances one section of 640 acres in each sixteen was set apart for school purposes. To this domain was soon added the Louisiana purchase and other additions. Herein were the public lands of the nation derived in large measure from the surrender of territory by the original thirteen States, scarcely one of which, if even one, has ever recovered any part of this great grant to the nation in the many grants since made by the nation for the support of schools.

Grants have been made to all the States for the endowment of agricultural colleges and the like, but the sum of all such grants is but about a sixth part of the acreage specifically granted for the support of common schools. (See State grants of public lands, General Land Office, Department of the Interior, March 12, 1896.)

From this document it appears that none of the New England or Middle States or Virginia, who parted with their great Western domain to the nation, have ever recovered any portion for school purposes.

In Group I the grants have been as follows:

	Acres.
Alabama.....	901,725
Florida.....	1,063,663
Louisiana.....	798,086
Mississippi.....	838,029
Georgia.....	none
North Carolina.....	none
South Carolina.....	none
Virginia.....	none
	3,591,792

In Group II the grants have been:

	Acres.
Arkansas.....	928,057
Missouri.....	1,162,137
Delaware.....	none
Maryland.....	none
Kentucky.....	none
Tennessee.....	none
Texas.....	none
West Virginia.....	none
	2,090,194

In Group III, numbering thirty-one States and Territories, nine New England and Middle States have received no grants; twenty-two Middle West, Mississippi valley, Northwest, Rocky mountain and Pacific States have been granted 65,430,858 acres. In many of these States certain sections of the best lands have been reserved on a systematic plan, awaiting the settlement of the surrounding sections.

In the New England and Middle States the schools have been a part of the system of organization from the beginning; in many of them school attendance is compulsory. In Massachusetts, and I believe in some other States, when a town attains a certain very moderate number of inhabitants the law requires a high school.

Now, if these States in Group I on the Southern Atlantic and Gulf division have not yet shared fully in the grants of public lands for school purposes, but have assented to the grants to the Western States, why have they not a right to demand of the nation that, having no such lands within their own area, their share of the proceeds of public lands already sold or hereafter to be disposed of shall be assigned to them at this time? The remedy for ignorance and illiteracy and the possible solution of the race problem may thus be made plain in a way in which the nation may justly assist.

In this analysis I have made no charges against any State or section. I have merely disclosed the facts which are developed by the figures of the national census in the hope that the true remedy for ignorance and illiteracy may be disclosed.

I am aware that it will be said that race prejudice is not confined to any section, or even to the Southern States. Admitted. Race antagonism has been developed in several of the Northern States and on the frontiers of the Southwest. But these are sporadic cases which will occur wherever ignorance, illiteracy and the habit of carrying arms exist; or, as in most of the cases in the North, where efforts have been made to bring colored laborers to take the place of white strikers.

The race problem is a different matter from race prejudice, and is practically limited to Group I, where the efforts are being made to limit the right to vote on the color line, without regard to the relative illiteracy or intelligence of the men of voting age.

Does it need more than a brief review of the conditions which have existed during and since the Civil War in this special section to account for the present conditions and for the misdirected efforts to remedy them?

These Atlantic and Gulf States in Group I were subjected to the devastation of war in far greater measure than any other Southern States. Their property was destroyed, their railways were torn up, their institutions were subverted, and for many years after the end of the war the larger portion of the most intelligent whites were either disfranchised or continued their own disfranchisement, while the ignorant and illiterate whites as well as blacks were charged with the duties of government. Under these conditions their credit was destroyed. Universal suffrage was granted without preparation, against the earnest efforts of John

A. Andrew and many others of the most prominent men of the North, who only yielded when forced to do so by events. It was advocated by Charles Sumner, but coupled with a large appropriation for schools, which only failed, I believe, by a tie vote in the Senate—the most bitter disappointment of his life. Other Northern men, notably Senator Blair of New Hampshire, have made most strenuous efforts to remedy this wrong by appropriations for education, but the time was not ripe.

Yet in this very Group I of States which suffered most from the devastation of war, and from subsequent misgovernment, we have since witnessed the greatest industrial progress, perhaps, ever made by the people of any State or section in mining, metallurgy, woodworking and in the cotton manufacture. The men who have developed the iron and steel works of Alabama, the cotton mills of Georgia and the Carolinas and the varied industries of Atlanta may be trusted to solve the race problem, once let it be defined and its source traced in main part, if not wholly, to ignorance and illiteracy. Sensible and intelligent men in these States see clearly that if the right to vote is limited by color rather than by intelligence, the most thrifty and valuable of the colored men and their families will leave these States, passing over to others where their labor is urgently demanded and where their rights are respected.

In this section also the most strenuous efforts are being made to establish technical schools, textile schools and industrial education of a high grade; but of what avail will such schools be, except to the few, if the many have had little primary education and almost no training in high schools in mathematics and the elementary principles of geometry and mechanics, which are necessary to fit them for general technical or special textile instruction? The foundation must be laid in the primary, grammar and high schools before any great progress can be made in the higher branches of instruction in the application of science and invention to modern methods of industry. The great technical and textile schools of England are now suffering because there are no secondary common schools giving preparation for them.

The suggestion which I therefore venture to make is that the citizens of these States should ask of Congress, not as a charity or bounty, but as a right, such share of the proceeds of public lands already or hereafter disposed of as may equalize the benefits conferred upon them with those that have enabled the West, Northwest and Pacific States to provide schoolhouses and equipment in advance of the requirement of the children of school age.

If such a movement should be made the people of these States may rest assured of the most earnest support of the people of Massachusetts, where the safety of the State is assured by an annual appropriation of nearly \$14,000,000 to the maintenance of common schools at the rate of \$4.93 per head of population, \$22.20 each for 623,211 children of school age, five to seventeen, inclusive, divided—

Native parents.....	223,308
Foreign parents.....	318,457
Foreign birth.....	76,122
Colored.....	6,324
	400,903
	623,211

Sixty per cent. of the population of Massachusetts being of foreign parentage or of foreign birth—more than 60 per cent. of the children.

The right of suffrage is enjoyed in Massachusetts only by those who can read and write—not a perfect standard, but the best working standard yet devised. In a

total number of males of voting age in Massachusetts, 843,465, there are but 5079 illiterates, or only six in each 1000 of the native-born either of native or foreign parents; there are 48,615 foreign-born illiterates—total, 53,694, or 6.36 per cent. of the men of voting age, not half the proportion of the native-born white illiterates in Group I. Under these conditions Massachusetts has attained the highest standard of individual wealth and common welfare under the economic law that, in the habitable temperate or semi-tropical zones, the attainment of individual wealth and common welfare is in inverse proportion to the natural resources within the area of the State, such lack of arable land, of ores, fuel, and even timber, compelling the people to develop their mental energy in order to make up for the deficiency in the physical endowment of the State.

A nation to whom it is now proposed to appropriate \$100,000,000 for the construction of armored battleships which the invention of "Maximite" and the submarine boat have already condemned to be put away as useless for any defensive purpose, and for which there can be no offensive purpose that can be justified, may surely be asked to provide for a true and righteous method of defending the nation from the virus of ignorance and illiteracy. While we are wasting the substance of the people in a misdirected effort to carry the gospel and the school-book at the point of the bayonet among the people of a far distant land, we are neglecting the ignorant and the poor within the limits of our own country to our shame and utter discredit. The true standing army and defensive force of this country is the corps of teachers in the common schools, over 420,000 in number. Let us increase that army and construct the school buildings, which are more effective for our defense than any fortifications or batteries of big guns can ever be.

The grants which have been made by

the nation to the agricultural experiment stations under State control have established a precedent. There are now fifty-six organized under the general supervision of the superintendent, an official in the United States Department of Agriculture. Few persons except those who have either been benefited by the work of these experiment stations or who have made a special study of them can begin to comprehend their usefulness in giving direction to the transformation of agriculture from a crude, extensive and exhaustive system of dealing with the soil as a mine to an intelligent and intensive system of dealing with the soil as a laboratory, which responds in its abundant production to the mental energy with which it is used as an instrument, while constantly gaining in the potential of product.

The grants of public lands or of their proceeds in money may be made under the general supervision and control of the United States Department of Education, with a paid auditor in each State appointed by the commissioner, by whom the accounts would be kept and the impartial distribution of the grant, without distinction of race or color, would be assured.

In every State may be found men of highest repute who would be honored by the choice and who would justly administer the grants so as to meet the needs of their respective States in the most effective manner.

I submit this treatise to my Southern friends in full assurance that while the facts disclosed may be unpleasant, and while some of the inferences may even at first excite some resentment, yet on second thought the motive will be understood, and perhaps a better way may be found than the one proposed to remedy the admitted evils of ignorance and illiteracy, if this analysis compels a systematic study of all the causes.

Brookline, Mass.,

Thanksgiving Day, Nov. 28, 1901.

THE RACE PROBLEM: ANOTHER VIEW.

By Edward Ingle.

[Written for the Manufacturers' Record.]

Southerners will appreciate the kindly, well-meaning spirit in which Mr. Edward Atkinson approaches his discussion of the race problem. Few, however, will be likely to accept his premise, which seems to be that the race problem is due to a lack of educational facilities, or, as he puts it, "the race problem exists only where there is ignorance and illiteracy among very large numbers of both whites and blacks."

The inverse is nearer the truth. Lack of educational facilities exists because of the race problem.

This may be proved by the same method and with the same figures as Mr.

Atkinson has used, though the hedge which he has raised about his proposition is confusing, if his limitations are not contested, especially as he has not defined, either statistically or otherwise, the race problem, and has left to be discovered the common denominator, as it were, without which the connection, imagined by him, between illiteracy and the race problem cannot be shown.

As a matter of fact, it is likely to remain undiscovered, if his theory prevails, simply because of the impossibility of reducing any race problem to reliable statistics. His theory has but one leg, and that a statistical one, and the most vigorous imagination will not supply the necessary crutch.

What is the race problem? Mr. Atkinson says that it is a different matter from race prejudice, and he limits it to a group

being benefited by the disfranchisement movements elsewhere.

During the past ten years, with the average rate of increase of the negroes in the country 17.94 per cent., the increase in the States mentioned were in Arkansas 18.67, Delaware 8.14, Kentucky 6.20, Maryland 8.99, Missouri 7.36, Tennessee 11.50, Texas 27.15, and West Virginia 33.06. Five of these States show an increase far below the rate in the country, and the other three are below the rate (38.84 per cent.) in Florida, which he includes in the group where the race problem is so strenuous. Moreover, Mississippi, which led in imitation in the South of the Massachusetts plan of intelligence in the suffrage, had an increase in ten years in the negro population of 22 per cent., and today contains 905,930 negroes, a greater number than any other State except Georgia, where the increase was at a greater rate than in Arkansas. The movement of the negroes into Texas, which accounts in part, it is believed, for the comparatively large rate of increase in Arkansas, is fairly well regulated to prevent a growth of the race problem beyond undue proportions, as Mr. Atkinson would discover if he should investigate, and is in response to the desire of the negro not so much to vote as to get the kind of work for which he is especially fitted. This is undoubtedly the case in West Virginia, where there are no restrictions upon the negro voter, and where the males number more than the females; in Florida, where the restrictions are hardly more than what was to be expected as an outcome of the deal of 1876, when the negro, after several years' baneful experiment, was dropped politically by his whilom friends, except as the problem might furnish campaign material; in Alabama, where constitutional disfranchisement was not when the census figures were gathered, and even in Mississippi, where the suffrage has been limited for ten years.

Mr. Atkinson turns to another group, including the whole country except the sixteen States in which slavery was once an influential institution, and says that in this group, in which there is no race problem in respect to negroes, "exists the minimum of illiteracy, both white and black." But he refers to another race problem in this group—in respect to Chinese. It is a pity that he stopped at the mere mention of this race problem. However, consideration of it would have demolished utterly his theory of illiteracy as the origin of a race problem, and, viewed in connection with the figures relating to whites and blacks, would have given him the clue to the secret of race problem, for a secret it seems to be to him, in spite of his array of statistics.

In this group the negroes constitute but a little more than 1.9 per cent. of the total population of whites and negro males of voting age, and 19.47 per cent. of them are illiterate, while the Chinese, who, be it remembered, do not try to vote, represent but .6 per cent. of the total population of whites and Chinese of voting age, and their literacy is far above the literacy of the negroes in the group of border States in which Mr. Atkinson fails to find a race question.

Yet, the Chinese race problem in this country has by no means been equalled by the negro race problem, when numbers are respectively considered, for the intensity of feeling behind it, not unlike that of the race problem which was reflected in legislation of forty-odd years ago in limiting the suffrage in Massachusetts, and certainly the statistics of Mr. Atkinson prove that it is not illiteracy among the whites, and indeed among the Chinese, which is working so effectively in the

West for a return to the indefinite continuation of the Geary Chinese exclusion act. This movement, which thoughtful persons everywhere will endorse, is voiced in bills introduced into the present Congress by Senators Mitchell of Oregon, Fairbanks of Indiana, Stewart of Nevada, Penrose and Quay of Pennsylvania and Lodge of Massachusetts, none of whom may rightly be classed among illiterates. Senator Lodge's connection with this race problem is eminently fitting, inasmuch as the suffrage restriction of California is quite similar to that of Massachusetts, and is akin to the sensible bill, also introduced by Senator Lodge, providing for an educational test for the admission of immigrants. Yet, Minister Wu Ting Fang thinks that the Chinese race problem is largely a case of the attractive garbs of Chinamen, and says that "if we adopted your methods, your habits and mode of living, there would be nothing said about our presence."

This brings again to the front the question, What is the race problem? Is it a matter of difference of color? The reception given to Wu Ting Fang at Charlotte, N. C., seems to answer that in the negative, as well his own contention about costume. What would he be as a social fades without his robes?

Is it a question of opposition to a different branch of the human stock? Not at present, as far as the South is concerned. In the largest city in the South the two leading political parties seem to vie with each other in catering to the vote of men of Semitic origin, though they constitute hardly a tenth of the whole number of voters, and in that and other cities they are prominent, if not dominant, in certain lines of trade and business.

Is it a question of the ability of a negro to earn an honest livelihood? The fact that negroes are employed in the South, and that there is a constant demand there for more of their work, gives that the negative, while the tragedy at Pana, Ill., in a State where 95.5 per cent. of the whites of voting age can read and write, and 81.3 per cent. of the negroes, and the more recent exclusion of a negro compositor from the printing office of a Philadelphia newspaper, in a State where 92.6 per cent. of whites of voting age and 82.5 per cent. of the negroes can read and write, are indications that the common school is not the "solvent of race, creed, language, status and condition" over by far the greater part of our common country," as Mr. Atkinson asserts. This antagonism is sketched more strongly by the Philadelphia Press, which, referring to the opposition to negroes in Oklahoma, a denial of Mr. Atkinson's view, says:

"Oklahoma has been considered as belonging to what is generally termed the North. It was largely settled by emigrants from Kansas and States North and East. But the antagonism to colored people seems to be as strong there as anywhere in the South, if not stronger; in fact, the opposition to the employment of colored men appears to be growing in the North, as recent occurrences in Indiana and Pennsylvania show. In both States decided objection has been made recently by white workingmen to working alongside of colored men. Northern sentiment evidently needs educating on this subject. It is the most unqualified hypocrisy to be finding fault with the treatment the colored man receives in the South if he is to be given no opportunity in the North to earn a living."

The negro has greater industrial opportunity in the South than anywhere else in the world.

Is it a question of disregard of so-called civil rights? There has been national as well as local legislation on that point.

In the District of Columbia, the seat of the national government, negroes constitute 31 per cent. of the population; in Massachusetts they constitute a little more than 1 per cent. In Washington a negro recovers one cent damages for being expelled from a theater; in Massachusetts a barber is fined \$20 for refusing to shave a negro divinity student. In the South the negro has wisely learned to do his own shaving or to patronize men of his own race. He may be illiterate, but he displays considerable intelligence when sober, and even after he has been taught to read and write, in the vast majority of cases, in not obtruding himself where his presence is not desired. The free recognition of the negro's civil rights, as far as they concern his association on an equal footing with whites in public places, is in inverse proportion to his number in the community as compared with the number of whites, just as is the intensity of the race problem.

Is it a question of crime and lawlessness? These are parts of the problem. And no better place to study them may be had than the District of Columbia. There practically every one of the reconstruction measures was tried on a small scale before the attempt was made to engraft it upon the South. There these experiments became a shame and a rebuke, a stench in the nostrils of decency, and resulted in a wreck for which the people of the United States are very justly still paying the bills in an indirect way. There, too, no one, black or white, has, for more than a quarter of a century, been allowed to vote. In the meanwhile there has been exceeding liberality in the way of appropriations for schools for both races, but the figures for the fifteen years between 1877 and 1892, fairly typical of general tendencies, are hardly arguments to support the theory that literacy will solve the phase of the problem involving crime. In the fifteen years the white population of the District increased 57 per cent., and the negro population 60 per cent.; the number of arrests of whites from 7523 to 12,415 annually, or 65 per cent., and of negroes from 5460 to 14,251, or 161 per cent. It may be contended that this increase, in which the negroes actually outdistanced the whites in number, was due to the influx into the District of illiterates. But opposing this impression is the fact that of a total of 12,983 arrests in 1877, 4276, or 32 per cent., were illiterates, while of the 26,666 arrests in 1892, 6079, or 22 per cent., were illiterate. In 1877 negroes furnished 42 per cent. of the arrests, but had increased their percentage to 53 by 1892. It is hoped that the figures for 1901 will show an improvement.

Is it a question of the privilege of voting? However one not closely acquainted with all the facts surrounding recent constitutional enactments in several Southern States may incline to criticise details, their position, best typified by Mississippi, is, in motive, but with stronger reason, the same as that of Massachusetts on this question, although nearly forty years belated and free from religious acerbities, and the figures of the movement of negro population into the former State indicate that the limitation of the suffrage is likely to do much for the solution of the race problem, instead of increasing its vexation. Mississippi, though, has suggested a plan which is recommended to Pennsylvania, where it seems illiteracy is at such a premium on election day that men are forced to claim that they are illiterates in order to insure the delivery of purchased votes. On this point the Philadelphia Record says:

"So far from complaining of the elec-

toral policy of Southern States, the people of Pennsylvania may well consider the need of adopting a like policy in order to protect the ballot from ignorance and corruption. Not to mention the native whites and blacks who cannot read, in recent years a very large number of the illiterate immigrants from Southern Europe have found a lodgment in Southern Pennsylvania. This element of the population, which is mainly located in Philadelphia, and in the mining and iron-manufacturing districts of the State, constitutes an important factor in the success of the 'machine' in carrying the elections."

Is it a question of restraining the social ambitions of deluded negroes oblivious to the social distinctions among their own people, or in response to them? This restraint as related to the ultimate end of social equality, the intermarriage of the races, is practically as potent in sections where illiteracy is at the minimum as where it is at the maximum, though it is apparent that this terrible condition is not approached as a rule by illiterates, however unreserved and familiar they may be in their daily intercourse in sections which have not yet been cursed with the problem locally, whose race-intelligence abhors miscegenation.

What, then, is the race problem? What is its origin? Mr. Atkinson has failed to define it, even negatively, and it is believed that his theory of illiteracy as its cause will not be able to stand. Suppose the following answers be considered.

There are various forms of the race problem, ranging through the conflicts of Greek against Turk, French Latin against German Teuton, English Saxon against Irish Celt and the children of Ham, and those of Mongolian and those of Caucasian stock against the Jew, from the ancient times in the land of Goshen even to the present day in Russia, to the agitation against the Chinese on our western coast, to say nothing of the fierce fight of Massachusetts against the Hibernians and others.

Henry Cabot Lodge, the great contradiction, the unblushing author of the Force Bill and of a bill opposing Chinese, refers to New England's race problem of fifty years ago in this gentle, tender manner: "The great bulk of immigration," he writes, "which has come to Boston and remained there has come from Ireland; and it is the Irish who compose the vast mass of those of foreign birth and parentage who now outnumber the original possessors of the city. The process of assimilation which has gone on all over the United States, by which men of so many different races have been turned into good American citizens, and by which also an American type has been developed, has, of course, been at work in New England and in Boston as elsewhere. The people of New England, however, have taken less kindly to foreign infusion and assimilate it less readily than has been the case generally in other parts of the United States. This is partly due to the fact that the New Englanders had lived for so many years with scarcely any foreign admixture, and partly to the deeply-imprinted and avowed belief of the early Puritans that they were a chosen people set apart from the rest of mankind for a particular work in the world. * * * It is to this intense belief in themselves, their race and their traditions that the success of the New Englanders, both in their native country and in the other States of the Union, has been largely due."

Howbeit, most of these race problems differ in origin from the negro race problem.

The primary cause of that was the institution of slavery, responsibility for

which belonged to men of all sections of this country, and its logical outcome, the war between the North and the South. It was intensified and complicated almost to insolubility by the earlier political, educational and philanthropic movements in behalf of the freed negro, which did not know, or deliberately avoided the fact, that any race just emerged from bondage, however mild that bondage might have been, was incapable of receiving at once the same kind of treatment for its improvement as that enjoyed by a race which had not known bondage for at least three or four centuries.

The race problem has been and is the effort made by the Southern people, because of their intense belief in themselves, their race and their traditions, to prevent the portion of the United States possessing its greatest potentialities from becoming a second Haiti. The race problem is the effort of Southerners, in the face of malignancy or of ignorance, notwithstanding literacy, to preserve the integrity of the white race, to save it from the horrors of mixture with a stock which men who believe in God or who have read history regard as naturally and fundamentally different from the Caucasian, if not inferior to it. This does not necessarily imply race hatred. It is in its essence a recognition of an instinct of the race, miscalled Anglo-Saxon, manifested, except among degenerates, wherever that race is confronted by the negro in considerable quantities—the instinct, however regrettable among theorists, which even the wildest theorists among the whites must acknowledge, were the attempt made to apply to himself the logical finality of his theories designed for others. The sane and self-respecting negro responds to a similar instinct.

The violent expressions of this instinct which Mr. Atkinson calls sporadic are really symptoms of an endemic condition.

Efforts to solve this problem from the outside by the bayonet, the ballot or the book have been made, and made in vain. The mass of men outside the South have come to share the conviction of Southern men that such methods are not only impotent, but dangerous. They will agree with Mr. Atkinson that the men "who have developed the iron and steel works of Alabama, the cotton mills of Georgia and the Carolinas and the varied industries of Atlanta may be trusted to solve the race problem," though those who no longer cling to the vagary that intelligence is a child of book-learning will deny his proviso, "once let it be defined and its source traced in main part, if not wholly, to ignorance and illiteracy."

They, too, will join sober-thinking men of the South in opposing vigorously Mr. Atkinson's plan of government financial aid for the solution of the race problem through a destruction of illiteracy—a plan not materially different in principle from that which for several years gave prominence to the career of Senator Blair.

Thinking men of the South understand the mistake that has been made, and to which the South was induced to commit itself, in endeavoring to train a child-race but one step removed from barbarism by the same methods as those applied to the white race possessed of a certain degree of ingrained culture of the centuries. They see the danger of fathoming or furthering any scheme which, in effect, may bind them to a prolongation of the great mistake. Without relinquishing their unselfish efforts in behalf of negro schools, they are inclining to avoid worse than waste and to make negro education follow the practical lines broadly laid down at Hampton and Tuskegee. At the same time they are convinced that their own white boys are the ones to be first re-

garded by them in plans of education, whatever others may wish to do for the negroes in nursing decrepit theories, and, for that, will oppose any suggestion likely to keep the whole question in the fog which has enveloped it for more than a quarter of a century.

Mr. Atkinson truly says that in the group of States in which he finds the race problem most intense, "which suffered most from the devastation of war and from subsequent misgovernment, we have since witnessed the greatest industrial progress perhaps ever made in so short a time by the people of any State or section in mining, metallurgy, wood-working and in the cotton manufacture."

Is not this acknowledgment a flat denial of Mr. Atkinson's theory about illiteracy, to which he has painstakingly and comprehensively misdevoted so many figures?

If the men of the South have been able to accomplish so much in spite of the terrible ordeal through which they have gone in maintaining American civilization and American material development, in spite of the bitter or misguided attempts to thwart their efforts to solve the race problem, why cannot they now be permitted without interference to solve it as they best know how, from longer and closer acquaintance with its manifold troublous phases?

They will solve it ultimately, however they may be handicapped by partisan enmity or friendly mistakes. If they be let alone they will solve it just the more quickly and just the more satisfactorily—especially for the negro.

There is an excellent opportunity at this very moment for practical achievements in that direction. It happens that the most strenuous worker for the prevention of the Chinese race problem is the most pronounced leader in the prolongation of the negro race problem. Why cannot the representatives of the South match permanent non-interference with the latter with their support of the former? Prevention of the yellow menace is as nothing compared with suppression of the black menace.

The race problem solved will give men the chance to correct illiteracy and other ills to which it has given birth.

It is a waste of time and money to seek to cure a disease by smothering its symptoms.

BUILDING AT ROANOKE.

One of the Many Evidences of Prosperity in Southwest Virginia.

[Special Cor. Manufacturers' Record.]
Roanoke, Va., December 16.

Never has there been more business transacted at Roanoke than in the past year, or more substantial a hope for greater and better things. There are no fictitious valuations, no wild ventures, no undue blare of trumpets, yet real estate has advanced 50 per cent. in the past twelve months, and the number of bargain and sale deeds recorded still more. Three hundred and fifty-five building permits have been issued since January 1; 709 deeds of sale have been made. Business houses are going up in rapid succession; others have been renovated and improved. Residences have been erected in larger numbers than ever before. Building material is at a premium in spite of numerous mills, and workmen cannot be obtained. There are paint and newness on all sides. A Young Men's Christian Association building costing about \$35,000 is nearing completion. A Roman Catholic church costing \$110,000 will soon be ready for occupancy. Virginia College, burned in November, 1900, to the ground, was open for school in September. A well-equipped hospital has

been opened, and numbers of new industries have been started. More people own their homes than ever before. There is upwards of \$2,000,000 on deposit in bank. Houses are in demand. New buildings are rented when the foundations are made, and rents are increasing. One builder has on his books five high-class dwellings for erection early in 1902. Last January he had none. He has built many this year. In short, the feeling of assurance was never so bright. A marked example of the confidence felt in the city and of the enterprise of Roanoke men is seen in the purchase a few days ago by two citizens of the Roanoke railway and electric plant, representing in bonds and stocks \$700,000.

The Roanoke Cotton Mill, beginning to produce cotton twines on August 1, has passed the experimental stage, and has recently added the machinery necessary to increase its output one-quarter. Its product is sold before completion. In spite of adverse changes in the market since its projection, the mill has demonstrated that such industries can be operated here at a profit. Although equipped with the latest labor-saving devices, it is employing 100 operatives, most of them being Roanoke people. Provision for a constantly-increasing production has been made, betokening the sanguine views of the future held by the promoters.

The Norfolk & Western Railway Co., through a policy of centralization here of all possible work, has effected vast benefit to the city in the past twelve months. The shops here are working day and night, and are still unable to supply the demand for repairs and new equipment. The shops employ between 1500 and 1600 men, and distributed among them for November about \$70,000. This, with road and clerical pay-rolls, makes the total spent here by this railroad alone average \$150,000 per month, or over \$6 per capita for every man, woman and child in Roanoke.

Work has just been begun on 250 stock cars and 500 80,000 capacity box cars for the company. An additional order for 500 80,000 capacity gondolas has been put in, and the material is on hand for them. Upon their completion it is probable that 1000 more 80,000 capacity gondolas will be built. With orders now being filled and those just completed, a total of 2250 cars for the Norfolk & Western will have been constructed in the Roanoke shops in less than two years. Besides this, the shops are turning out two heavy consolidation engines per month, at a saving to the company of about \$500 on each engine.

To facilitate work the shops are adding improvements exceeding \$150,000 in value. These include a central boiler and power plant, two 160-kilowatt and one 75-kilowatt direct-connection generators for furnishing power and light, also a new battery of 600-horse-power Babcock & Wilcox boilers. The business of the road is heavier than ever before. Its net earnings in October, 1901, were 22 per cent. larger than in October, 1900.

Wholesale and retail business houses are crowded. The volume of trade coming here from the southwest is constantly increasing. The Christmas trade will be the largest ever experienced. Business men are confident that 1902 will be a still better year in all respects than this. There is every indication that it will surpass the highest marks yet made, and in a manner remarkable for conservatism.

The city has just purchased fifty acres of land for park and public uses. The public schools are pressed for room. Although two new buildings have been provided in the past year, a \$4500 addition is being made to one building and \$4000 has just been spent for the purchase of land

for another school structure. A fair association has been formed for the holding of annual exhibitions of products of the city and section. These are but a few of the features that have occurred to the writer in relating the evidences of Roanoke's new and healthy estate. It may be added, in conclusion, that the total of subscriptions to church and other causes in the present year will reach upwards of \$100,000. Oil is being prospected for in the southwest by Roanoke parties, with every indication of success. Others are prospecting for coal and oil within ten miles of the city. There are no idlers, and there is work in plenty for all.

PRICES STILL HARDEN.

Iron Stocks at Birmingham Comparatively Small.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., December 17.

The firmness of the iron market last week was accentuated, and the hardening of prices lately mentioned in these letters was more manifest, as an advance was obtained on small orders. No. 2 foundry, which is quoted at \$11.50, brought \$11.75 in a small way. The demand, while not acute, is fair. If conditions were normal the volume of business would excite no comment. But compared to the usual conditions of the trade, the stock from which to fill orders is comparatively so small that sellers have great difficulty in meeting buyers' demands. They must be small to be met with any satisfaction to either buyer or seller. There has been a good deal of scaling down of orders before acceptance, and frequently orders are declined altogether because of inability to supply the grades desired. Judging from the character of the orders of late, confidence in the stability of prices has very steadily grown. Frequent orders from buyers of late have covered their requirements for the whole of 1902, and they are increasing in number. Some of the furnace interests are very much averse to encouraging orders for delivery beyond the first half of 1902.

The market is strong at \$12.50 for No. 1 foundry and No. 1 soft, \$11.50 for No. 2 foundry and No. 2 soft, \$11 for No. 3 foundry, and \$10.50 for No. 4 foundry and gray forge. And we are on the eve of an advance putting the market on a basis of \$12 for No. 2 foundry. The continuance of present conditions is sure to give this result, and everything so far favors this continuance.

About steel there is nothing to say beyond the statement that all the output of the mill finds ready buyers at prices satisfactory to sellers. Shipments are very much hampered by the car famine. It looked a short time ago as if we would have an easing up of the situation, but the outlook has proved to be a delusion, and the situation now is as bad, if not worse, than it was. The complaint on this score is universal. Business has grown faster than the facilities for its prompt handling. In coal, operators are more discouraged than the iron interests. There is a good deal of iron in furnace yards stacked convenient for shipping, and it is likely to increase for some time longer.

Some new companies have been incorporated during the week, notably the Abernant Coal Co., capitalized at \$30,000, and the Ensley Investment Co., capitalized at \$20,000. Besides these, it is likely that other incorporations will soon be announced, as Eastern capitalists who have options on important and valuable properties are examining them by experts, who, so far, are very favorably impressed. The report comes to us that fine deposits of brown ore at Leeds are being mined, and that the shale brick factory there has

had a successful start. Confidence in the value of real estate here is exemplified in the closing of the deal for a prominent corner in the business center of the city, 100x100 feet, for \$100,000.

One thing that will tend very much to add to the importance of Birmingham is the projected shipbuilding plant at Mobile, which in operation will be a big customer to Birmingham industries, and will also open the door to the markets of South America. Another is the completion of the projected railroad from Huntsville north through mineral and timber regions of Alabama, Tennessee and Kentucky. Eastern capital has been secured to build it, and the survey of the route, to begin in January, will be quickly followed by the building forces. J. M. K.

For a Silk Mill.

Mr. L. M. Coleman of Seneca, S. C., writes to the Manufacturers' Record as follows:

"An owner of a partially-developed water-power and mill-site in Oconee county, South Carolina, desires to correspond with silk manufacturers with a view to building a silk mill. The mulberry tree is indigenous to this locality, and quite a number of farmers are entering into sericulture. In past years silk was made here of a very superior quality, and the prospects now are that silk-raising will rival cotton as a product of this and other counties in South Carolina. A silk mill would do much toward establishing this industry, and a silk manufacturer would secure the hearty co-operation of this community in such an enterprise."

Coal-Tar Briquettes Abroad.

In a letter to the Manufacturers' Record Mr. W. R. B. Lockie of 17 South Castle street, Liverpool, England, says that there is no reason why American gas producers should not sell their coal-tar pitch in Europe, and that he might be instrumental in placing them in business relations with some possible European purchasers. He adds:

"In France, owing to the brittle nature of the coal there extracted, the mining thereof results in a great proportion of slack. As a consequence, the industry of the production of briquettes there is very developed. Briquettes are produced by means of the incorporation of coal slack with pitch. The two products are put in presence and are pressed together, much after the fashion of ordinary bricks. The pitch is extracted as a by-product of gas retorts."

Vicksburg's River Trade.

In his annual report Major Casey, United States engineer in charge of the Vicksburg district, summarizes Vicksburg's river commerce as follows:

	Yazoo river and tributaries.	Mississippi river.	Total.
Articles.	Tons.	Tons.	Tons.
Cotton.....	12,384	8,226	20,610
Cottonseed.....	19,324	21,089	40,431
Coal.....	5,900	25,000	30,900
Lumber.....	27,154	1,830	28,984
Saw logs.....	29,800	35,700	65,500
Staves.....	24,899	499	25,398
Live stock.....	432	1,282	1,714
Hides and skins.....	77	304	281
Grain.....	4,900	16,611	21,511
Provisions.....	12,359	13,519	25,878
Miscellaneous...	10,633	20,144	30,777
Total.....	147,862	144,204	292,066
Est'd value.....	\$3,631,000	\$4,761,000	\$8,392,000

The Herald of that city, commenting upon the surprising figures of the report, says:

"The average total tonnage for the past six years is 301,566. The facts of the city's commerce would be made clearer if the Vicksburg Cotton Exchange reported the lines of cotton receipts and shipments in detail, as is shown in the report for Shreveport, Monroe and Greenwood. The number of bales by each railroad, by river

and wagon is given for these places. Vicksburg merely gives the total, which tells nothing of interest. The Exchange should amend this procedure, which would be a simple matter of care. That body and all other commercial agencies of the city should use every opportunity for displaying and advancing Vicksburg's river advantages and opportunities. And to that end full and correct statistics of river trade is essential."

Shipbuilding on the Gulf.

Officers and directors of the Gulf Coast Shipbuilding & Dry-Dock Co., which is considering the establishment of such plants at Mobile, also at New Orleans, have recently been in both cities examining coast sites. Chas. M. Jesup of New York is president; C. M. Wickes and Samuel B. McConnico, vice-presidents. There is a possibility that what is known as the McLellan dock at New Orleans may be purchased, and it is reported that the company has secured extensive water frontage at Mobile for its purpose. The financial plan of the company includes the issue of \$5,000,000 in bonds to furnish the necessary funds to build the plants. C. P. E. Burgwyn of Richmond is also reported to be interested in the projects.

Norfolk Shipbuilding.

Another addition to the growing ship-repairing and building interests of Norfolk, Va., is announced in the incorporation during the week of the Union Construction & Dock Co., capitalized at \$20,000. This company intends to build and have in operation within six months a general plant, to include foundry, marine railway, floating dock of 500 to 1000 tons capacity, spar-yard and sail-loft. About 200 men will be employed. Large vessels will be put on the dock and the smaller craft on the marine railway. The officers are D. D. Hitchings, president; J. E. Davis, vice-president; C. T. Dean (of Ironton, Ohio), secretary-treasurer, and directors, Messrs. W. T. Bowden, Thornton Reed and T. S. Ward.

A 10,000-Ton Ship.

One of the steamships now being built by the Maryland Steel Co. at Sparrow's Point for the Boston Towboat Co. is to be named the Shawmut, and has reached a point where it is ready for the water. The vessel is one of two being built by this company, and will be the largest yet constructed at the Sparrow's Point yards. It is 505 feet in length, 58 feet beam, and will have three steel decks. Its total carrying capacity is estimated at about 10,000 tons. It will be placed in service as an American "tramp" steamship, joining the fleet owned by the Boston Company, which have been built at the same plant. It will have engines capable of producing 5000 horse-power, giving it a speed of from twelve to fourteen knots an hour.

A Travelers' Encyclopedia.

It would seem as if previous numbers of the Official Railway Guide, as it is popularly termed, could not be improved upon in the diversity of information which they contain, but the December issue may be said to eclipse all others yet published. It is an encyclopedia for the traveler and railroad official in every sense of the term, and contains the latest changes in time schedules secured by mail and telegraph. An idea of the work required in getting out the Official Railway Guide can be gained when it is said that it gives the time of the arrival and departure of trains at no less than 28,000 stations, and contains the changes of 619 timetables, representing 15,846 trains. It must be remembered that the work is not only the official

guide of railway and steam navigation lines in the United States, but includes Canada, Mexico, Cuba and Porto Rico—features of a special value during the winter months, owing to the interest which has attracted so many travelers to Mexico and the West Indies. The accuracy of this publication is really wonderful when the mass of statistics it embodies is taken into consideration.

Paying Their Way.

A dispatch from Jackson to the Memphis Commercial-Appeal shows that the Mississippi State government is moving in the direction of self-support. It says that under the present convict farm system the Mississippi penitentiary has been converted into a source of revenue, and it adds:

"During the past two years the penitentiary has paid into the State treasury as net revenue over and above the prison expenses \$18,771.70. During the last fiscal year the amount paid in was only about \$700 greater than the year previous, but over \$40,000 had been paid out for a new farm.

"The State revenue agent is also a self-sustaining office, and one that has proven an enormous source of revenue to the State during the past two fiscal years. From this source the treasury of Mississippi received for the two years \$348,151.90.

"The office of State land commissioner has also proven a most remunerative one to the State during the past biennial period. The report of this officer shows that he has collected enough fees to pay the expenses of his department, and that the State treasury has received from his hands the sum of \$185,661.33.

"The report of the secretary of State is not yet ready for publication, but it has been repeatedly published since the new charter fee bill went into effect that the office was yielding a handsome revenue derived from this source, many thousands of dollars in excess of its expenses."

La Porte to Manchester.

A dispatch from La Porte, Texas, is to the effect that arrangements have been completed by an English syndicate to operate a line of steamships between this city, which is located on a portion of the Galveston harbor, and Manchester, England, by way of the Manchester ship canal. It is stated that a number of ships are being constructed which will be placed in the service. The Post of Liverpool is authority for the announcement, and further states that cotton brokers of Manchester are interested in the venture. The first vessel is expected to reach La Porte in March.

The Baltimore, Chesapeake & Atlantic Railroad Co. announces that the Harlin & Hollingsworth Co. of Wilmington, Del., will build the steamboat which it has decided to add to its fleet on Chesapeake bay. The estimated cost of the steamer is \$150,000. It will be 190 feet in length, 53 feet beam, and will be furnished with engines giving it a speed of fifteen knots an hour. It will have accommodations for 200 passengers, and will be placed in service on the Chesapeake bay and Pocomoke river.

The steamship Northwestern recently reached Galveston, Texas, with a cargo of 2100 tons of steel rails, which were shipped to the Mexican republic by rail from Galveston. The rails are for use on a line being built in the western portion of the republic.

An important part of a cargo of American goods recently arrived at Melbourne, Australia, was twenty-four locomotives

built by the Baldwin Locomotive Works for the government of New South Wales.

Literary Notes.

The Engineering Magazine for December puts in the leading position an article by F. E. Saward on the growth of American coal exports. The cause is clearly shown to be the constant cheapening of production through improved methods of mining, handling, transport and shipment. The effect is a relief to the overdriven British collieries, the conservation of British fuel supplies and the reduction of prices, to the enormous advantage of British railways, manufactures and industries generally. Mr. Philip Dawson, the able adviser of Mr. Yerkes in his London traction enterprises, writes of English, American and continental steam engineering, treating particularly British traction power-houses and their equipment. Paul Daimler, son of the great inventor of the petroleum motor-vehicle, tells the story of his father's work, arranged from notes of an article the elder Daimler had in preparation for The Engineering Magazine at the time of his death.

Mr. Hamilton Church finishes his series on the "Distribution of the Factory Expense Burden." Mr. Lazenby describes the plant, the organization and the management of the great Victoria Works at Rugby. Messrs. C. W. Purington and J. B. Landfield, Jr., have a most interesting review of gold-dredging opportunities in Eastern Russia. Mr. Leicester Allen presents a project for a "Bureau of Engineering Data," and Mr. Rushmore describes the design and action of the rotary converter.

There is no lack of the Christmas spirit in the December number of The Ladies' Home Journal. Among the stories are: "The Baby Behind the Curtain," by Elizabeth McCracken; "Christmas Eve on Lonesome," by John Fox, Jr., the Kentucky author; "How the First Letter Was Written," by Rudyard Kipling, and the first part of an amusing story of Western ways called "The Russells in Chicago." "The People Who Help Santa Claus" are told about; the Rev. David M. Steele relates some pathetic stories of the New York poor, and Elliott Flower delightfully describes "The Linfields' Christmas Dinner." The second room of the "Bradley House," the library, is shown in detail. Mr. Bok's editorial is headed "Personal," and that it is.

When Frank A. Vanderlip resigned as Assistant Secretary of the Treasury he went abroad with letters to all the ministers of finance in Europe and spent many months investigating the financial and commercial situation, with particular reference to the inroads which American trade is making on the whole world. There never was a more important subject for this country, and Mr. Vanderlip, through his training as a journalist and as an officer of our government, is exactly fitted to write upon it with judgment, and to make it entertaining. The first of his articles on the "American Invasion" of Europe will appear in the January Scribner's.

The World's Work will have a "Looking-Outward" number for its January issue. "The period of exclusiveness is past" is to be its clue, taken from the late President's famous Buffalo speech. It will deal with American expansion as a most interesting chapter of modern history, and already one large American trading firm has arranged to send a copy of the magazine to each of the 1500 foreign agents. The magazine will be superbly illustrated, as usual, and will have a special cover in colors by Louis Rhend.

RAILROADS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

IN THE HEART OF NEW YORK.

Progressiveness of the Pennsylvania Railroad Co. Shown in a Plan of Great Magnitude.

The organization of the Pennsylvania-New York Extension Railroad Co. means the carrying out of the most elaborate plans ever conceived for railroad terminals. The Pennsylvania Railroad Co. has arranged to construct a tunnel under both the North and East rivers, which will give it an all-rail entrance to the heart of Manhattan Island, as well as a connection with Long Island. President A. J. Cassatt makes public the plan as follows:

"After years of exhaustive study, the conclusion has been reached that a tunnel line, operated by electricity, is in every way the most practical, economical and the best both for the interest of the railroad company and of the city. The line as adopted will traverse the city of New York from the Hudson river to the East river, and be under ground throughout, and at such depth as not to interfere with future construction of subways by the city on all its avenues similar to the one now building along Fourth avenue.

"As the railroad will be wholly under ground and operated electrically in the same manner as the recently-constructed Orleans Railway extension in Paris, it will not be objectionable in any way. There will not be any smoke, dirt or noise, and as the surface property may be built upon after being utilized underneath for railroad purposes, the neighborhood of the station will be improved instead of marred, as is so often the case when railroad lines are constructed on the surface or elevated.

"The company has acquired the bulk of its property for its principal station, and means to go forward in the acquisition of such additional properties as will be required, either by purchase or condemnation, in the belief that the city authorities will meet its application in a spirit of fairness and expedite as much as possible this much-needed improvement and great public convenience.

"Immediately upon the necessary authority being granted the work of construction will proceed, and the whole line will be completed and put in operation as soon as possible."

The estimated cost of the improvement is \$40,000,000, and when completed trains can be hauled from the principal cities of the country direct to Manhattan Island. It is announced that the depot on the island will cover three city blocks of ground, and that a series of twenty-five underground tracks will be used for terminals. The location is between Seventh and Ninth avenues and Thirty-second and Thirty-fifth streets.

THE WABASH IN THE SOUTH.

Forming a Route Through the Virginias from the Lakes to Tidewater.

Recently the Manufacturers' Record referred to the sale of what is known as the Little Kanawha Railroad, extending from Parkersburg, W. Va., along the Little Kanawha river to Palestine, a distance of thirty miles, to a syndicate which, it was stated, was acting in the interest of the Wabash Railroad Co. Since the sale surveying parties have been in the field with a view to extending it from Palestine to Burnsville. The West Virginia Central & Pittsburg has surveyed an extension to Burnsville, where

connection would be made with the Little Kanawha. A dispatch from Parkersburg practically confirms the report that the Goulds have become interested in the Little Kanawha road. According to the dispatch, the Zanesville, Marietta & Parkersburg Railroad Co. has been organized to control it and to build an extension from Parkersburg to Zanesville, Ohio, by way of Marietta. The plans include a bridge across the Ohio river at Parkersburg, which is the present terminus of the Little Kanawha Railroad. J. T. Blair is president of the company; E. D. Fulton of Uniontown, Pa., secretary, and E. C. Burton, treasurer.

Mr. Blair in an interview is quoted as saying that the company "will act in harmony" with the interests of the Wabash system. The latter railroad does not reach Zanesville, but has close relations with several lines entering the city, and it is believed will utilize one of these for a connection with the Zanesville, Marietta & Parkersburg, thus completing its route into West Virginia. As the West Virginia Central has been making surveys with a view to securing a tidewater terminus at some point in Virginia, these recent developments would indicate that it will form a part of the route to the Atlantic seaboard, which is known to be desired by the Wabash Company.

Mobile to Memphis.

President F. B. Merrill of the Mobile, Jackson & Kansas City Railroad Co. makes the following announcement to the Manufacturers' Record:

"We have decided to extend our line to Memphis, leaving our present road at or near Augusta, Miss.; thence north via Laurel on as near a direct line as we can hold to Memphis. This extension will be about 300 miles, and we have surveyed from Augusta to Bay Springs, a distance of sixty-five miles. The contracts for this work will be let the latter part of this month or first of January. The whole work will be put under construction as fast as the engineering corps can locate the line and right of way can be obtained.

"The construction on extension to Hattiesburg is now under way; steel is laid to Leaf, Miss., and with fair weather we hope to have the road completed and in operation to Hattiesburg by the first of March or April."

A Southwestern Project.

In a letter to the Manufacturers' Record Mr. A. E. Yerex, vice-president of the Oklahoma, Texas & Gulf Railroad Co., gives the following details relative to this enterprise:

"I am interested in the construction of a railroad from Oklahoma Territory to Paris, Texas, or rather from Kingfisher, Okla., to Paris, with a branch from Coalgate, I. T., to South McAlester, I. T. The entire line, including branches, will consist of 420 miles of track.

Our purpose is to give Kansas, Oklahoma and Indian Territory a short line to a Gulf seaport. The line from Oklahoma City to Coalgate has already been surveyed; balance will be completed in sixty days. Contracts will be let for part of the survey within thirty days.

"We are financially in shape for immediate construction and equipment, and fully expect to have trains running over entire line within one year from date."

Progress of Kansas City Southern.

The annual report of the Kansas City Southern Railroad Co. was recently made public, showing a remarkable expansion of traffic compared with the previous year. The freight tonnage aggregated 1,848,000, the number of passengers carried increased from 140,852 to 620,845, while the

net receipts per mile were \$1624.50, compared with \$680.79 during the previous year, a gain of nearly 300 per cent. The total gain in gross receipts was \$634,000, although the increase in operating expenses was but \$73,000. The percentage of operating expenses to earnings has been decreased 9 per cent. during the year. President Knox states that \$2,250,000 was expended for new buildings and rolling stock between April 1, 1900, and June 30 last.

A Reported Sale.

It is announced that the Union Trust Co. of Baltimore has purchased a controlling interest in what is known as the Virginia & Southwestern Railroad. Officials of the company do not deny the report. The railroad in question is in operation between Bristol and Inman, Tenn., a distance of seventy miles, with branches from Bristol to Elizabethton and Maymead, the total mileage aggregating 123. It traverses one of the most extensive mineral and timber sections in the South, and forms a connection with the Southern, the Louisville & Nashville and the Norfolk & Western systems. In connection with the announcement of its sale is a report that the Union Trust Co. is acting for another railway system.

Street Railway Sales.

New Orleans advices are to the effect that the syndicate of Northern capitalists represented by H. H. Pearson, Jr., of Philadelphia has secured the assent of 85 per cent. of the stockholders to the sale of the street-railway lines in New Orleans to the syndicate, and that the transfer will be made within a few weeks.

It is reported that the Everett-Moore syndicate of Cleveland, Ohio, is interested in a plan to merge the Richmond Passenger & Power Co. and the Richmond & Petersburg Electric Railway Co. into one corporation, and that it will secure a controlling interest in both of these lines. The promoters are endeavoring to secure legislative authority from the city council for the purpose.

Demand for Rolling Stock.

During the present year the Southern Pacific has secured 103 locomotives and 5000 freight cars, but owing to the increase in freight traffic, caused largely by the development of the Texas oil field, it will require considerable additional rolling stock, and, according to Vice-President Kruttschnitt, has decided to purchase seventy-five additional locomotives and more tank cars. Contracts have been let for 500 of the tank cars. Mr. Kruttschnitt states that the demand for the oil from the various markets thus far secured renders the rolling stock absolutely necessary.

In Western Maryland.

Another electric railroad, it is understood, is being planned in Western Maryland which will form practically an extension of the system operated by the United Railways & Electric Co. of Baltimore. At present the system is in operation to Reisterstown, a distance of twenty miles from Baltimore. It is stated that representatives of the company have secured options on turnpikes which would give it a right of way to the towns of Liberty and Frederick. The extension, if built, will be about thirty miles in length, and give a trolley connection between Baltimore and Frederick.

Prosperous Alabama Line.

W. M. Blount, president of the Union Springs & Northern Railroad, Union Springs, Ala., in a letter to the Manufacturers' Record writes that his company

expects to let contract for twenty miles of construction after the first of the year. He states his company is doing extensive business—in fact, cannot handle all the traffic that is offered it—and he finds great difficulty in obtaining locomotives and coaches and freight cars for prompt delivery. The Union Springs & Northern is a road recently completed between Union Springs and Fort Davis, Ala.

To Traverse Timber Territory.

Mr. J. J. Holloway, president of the Tennessee & North Carolina Railroad Co., informs the Manufacturers' Record that the extension under construction is eighteen miles in length, extending from Newport, Tenn., to Big Creek, N. C. It is practically completed, and will be used in hauling lumber principally. The company proposes developing the country as much as possible by encouraging lumbering interests. It is estimated that fully 200,000 acres of forest land will be reached by it.

Extend to Hot Springs.

The Kansas City, Hot Springs & Southwestern Railroad Co., recently organized in Arkansas, it is understood will form a northern connection of the Arkansas Western Railroad, in operation between Heavener, I. T., and Waldron, Ark. The company recently formed will build from Waldron to Hot Springs, a total distance of eighty-two miles, and is capitalized at \$1,250,000. C. C. Godman of Fort Smith, Ark., president of the Arkansas Western Railroad, is also president of the new company.

To English Investors.

London advices are to the effect that A. E. Stilwell, president of the Kansas City, Mexican & Orient Railway Co., has practically concluded negotiations to sell \$3,500,000 in stock of the National Construction Co., which is building this road, to English investors. The money will be utilized in the prosecution of the railroad project.

Southern Securities Co.

The Southern Securities Co., recently chartered in New Jersey, it is reported, has been organized to represent a combination of several railroad lines in the South. It is capitalized at \$100,000, but the provisions of its charter allow an indefinite increase in its stock.

To Extend to Fort Worth.

A dispatch from Fort Worth, Texas, states that arrangements have been completed to build the extension of the International & Great Northern system from Waco to Fort Worth, and that contracts have been let. The distance is about 100 miles.

The Louisville & Nashville Railroad Co. has decided to build a passenger depot at Selma, Ala., which will cost about \$50,000. It will be 125 feet long and 90 feet in width, constructed of brick and stone.

The important and extensive improvements proposed by the Newport News (Va.) Shipbuilding & Dry-Dock Co. that have been previously spoken of are about to be commenced. Following a visit this week of President C. B. Orcutt and Mr. H. E. Huntington, W. A. Post, the local superintendent, stated that the construction work for the improvements will be commenced next week. These betterments will include the erection of a 150-foot addition to the office building, additions to the machine shops and other mechanical departments, and general improvements to increase facilities. An expenditure of about \$250,000 will be made.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.**Baltimore.**

Office Manufacturers' Record,

Baltimore, Md., December 18.

The year now about to close shows a fairly active demand in most departments of the local lumber trade. Business generally is now being conducted on a substantial basis, and the conditions surrounding the market are favorable for a continuance of a steady demand for nearly all grades of material. During the week under review the various commercial woods have been moved more freely, and while buyers are not at the moment adding largely to their stocks, with the winding up of the year's business an active demand is expected. Among the various woods on the market, North Carolina pine is perhaps enjoying the greatest share of attention. Receipts of this lumber are generally light, and stocks at all milling points are barely sufficient for the demand; in fact, certain grades of North Carolina pine are scarce, and prices a shade higher than thirty days ago. The demand for Georgia pine is brisk, and values very steady. Cypress, hemlock and spruce are all showing good form. White pine is very steady, with values hardening, and holders firm and not disposed to sell except for prompt and short-time delivery. The hardwood market continues to show more strength as the season advances, and during the week a fairly active demand has ruled. Poplar is still in good demand at higher prices for strictly fine stock. Oak is selling freely to furniture men and others, and values are steady. A good demand for ash is coming from wagon shops and other woodworking concerns. Exporters of hardwoods report very little change in the markets abroad; stocks are fully ample in United Kingdom and continental ports for all requirements, and hardwood logs and lumber at recent auction sales are reported as selling freely at good prices.

Savannah.

[From our own Correspondent.]

Savannah, Ga., December 16.

All indications point to a season of activity in nearly every avenue of the lumber industry of this section of the State during the winter months. The market during the past week closed very steady, with a brisk demand from the usual sources at Northern and Eastern centers. The shipments for the past two weeks aggregated about 6,000,000 feet of lumber, and the demand for crossties still continues active. At a meeting of the Georgia Saw-Mill Association, held last week at Tifton, reports from members present were very satisfactory. The demand and general conditions of the lumber market were reported unusually good, with an increase in the list of values. A general advance was postponed until the January meeting, when new association price-lists will be issued. The Pierpont Manufacturing Co. of this city will shortly begin the manufacture of crates and tubs. Machinery will be ordered for the equipment of an annex to the factory. The Pierpont Company has contracted with the Southern Cotton Oil Co. to supply the latter with the tubs it may need for lard and other products. At the port of Brunswick the movement in all wood products is very encouraging to manufacturers and exporters. The coastwise lumber shipments for November amounted to 15,200,000 feet, 195,000 feet of timber, 1,876,550 shingles and 141,939 crossties.

The foreign shipments were 1,817,500 superficial feet of lumber. The market for crossties is firm, with the inquiry brisk from railroad corporations. A deal has recently been consummated by which this port will export 1,000,000 crossties for central Florida purchasers, and the prospects for a large domestic and foreign business in 1902 is most flattering. Freights on lumber continue steady, with the offering of desirable vessels moderate. Charters reported for the week were as follows: Schooner Charles D. Hall, 379 tons, Brunswick to New York with lumber on private terms; schooner The Josephine, Savannah to Baltimore with crossties at 14 cents; schooner H. B. Peck, 449 tons, Savannah to New Haven with lumber at \$5.50, and schooner J. G. Schmidt, 450 tons, from Fernandina to Philadelphia with lumber at \$5.25. The steamship Northman finished loading a cargo of lumber for New York on Saturday last, having taken on about 1,500,000 feet. The steamship Northwest will be the next steamer of the line due to load lumber at this port.

Pensacola.

[From our own Correspondent.]

Pensacola, Fla., December 16.

The outlook for an active close to the year's trade at this port is very encouraging, and for lumbermen especially the remainder of the month will be characterized by unusual activity. On Saturday last there were five steamships and five sailing vessels at the docks of the Louisville & Nashville Railroad, and work in the bay, which has been quiet for November, has brightened up considerably. Every vessel in port except one is loading lumber, and as a consequence work is very plentiful. The shipments of timber continue light, but lumber shipments show an increase. Stocks of timber at Ferry Pass have been increased during the last few days by some arrivals on the slight rise in the river caused by local rains. Pitch-pine freights are unchanged, and are quoted as follows: United Kingdom and Continent, 95/ to 100/; to Mediterranean, 90/ to 95/; River Plate, \$12 to \$12.50; \$13 to \$13.50 to Rosario; \$13.50 to Rio Janeiro. Steamer freights are dull at 82/6 to 85/. The British steamer Atbara was chartered last week to load timber and lumber at a Gulf port for United Kingdom or Continent at or about 82/6. The advices from milling sections adjacent to Pensacola are very favorable. Mills are all busy, and are fully employed turning out orders. The demand from the European market is good, while from South America and Cuba trade continues moderately fair. Prices for desirable grades of lumber are generally firm throughout the list.

Mobile.

[From our own Correspondent.]

Mobile, Ala., December 16.

The timber market is at present the ruling topic of discussion among exporters, and the market for sawn timber during the week has shown a firmer tone. Sawn timber when placed upon the market will bring 14 1/2 to 15 cents per cubic foot, and hewn timber 14 to 15 cents per cubic foot. Stocks of timber here amount to about 35,000 pieces, with receipts generally light. From the number of vessels in port loading and those chartered to arrive, the present stock of timber will be quickly absorbed. The low stage of water in the rivers precludes the possibility of bringing out large quantities of timber. The lumber trade is fairly active, with prices throughout the list very steady. The demand continues brisk from Cuba and the United Kingdom and Continent. Last week 528,410 feet of lumber went out to Havana and other ports. The shipments so far this season

amount to 21,586,902 feet, against 27,852,020 feet. The shipments of timber during the past week amounted to 148,713 cubic feet of sawn timber and 15,587 cubic feet of hewn. The freight market continues to show an easier tendency. Present rates are at 80/ to 82/6 to United Kingdom and continental ports.

Beaumont.

[From our own Correspondent.]

Beaumont, Texas, December 14.

Never before in the history of the lumber business of Texas has there been such a car shortage as now. It is not alone the lumbermen who are in difficulty, but business men of every class in Texas are suffering. There is a freight blockade at New Orleans, and all the Southern Pacific's cars are being sent there to relieve the situation. There is almost a blockade in Beaumont. Today there are 400 car-loads of oil alone waiting movement. There is nothing for the lumber manufacturer to do but patiently await what relief he can get by an occasional car. On the Watkins road in Louisiana there are stacked on mill skids awaiting shipment 35,000 ties. On the Kansas City Southern road there are at least 50,000 ties awaiting cars. The same conditions prevail in greater or lesser degree on all the lines in Texas and Louisiana. There is no prospect of any immediate relief. The situation is critical. The dealers in Texas are literally howling for lumber; they are calling the mills up over the long-distance phones, telegraphing and writing for lumber. They need it badly. Few of the Texas dealers have any stock on hand worth considering, and this is being rapidly depleted, on account of their inability to replenish. There is a fine trade from the State at the present time, and it is very deplorable that the manufacturers cannot take advantage of it. Arkansas mills are probably as short as the Texas mills are on cars. In the light of these events, there is not much new business to report. The mills can get all they wish, and more, but under the circumstances they are turning down more orders than they are booking. The timber business is as good as it has ever been, with a firmer demand for ties especially. But the shipments are away behind the normal quantity. There is particularly a strong demand from the railroads and mines of Mexico for timber stock. Trade is very good in that section of the continent, but there is not much demand for stock from any other export market. The prospects are not very bright for the exporting of lumber to Europe during the next three or four months, and it is very doubtful if there will be any business of this class transacted during the next four to six months. The domestic trade is so heavy and the prices therefor are so good that they will operate to prevent exporting. There is a heavy demand for shingles in Texas. The mills have a good stock on hand at the mill yards, but cannot move it. Prices current: Shingles, primes, \$2.90; hearts, \$3.50; 1x4 clear flooring, \$21; B grade, \$20; 1x12 boxing, \$18.50 to \$19; piece stuff, \$14.50 to \$15.

The Turpentine Operators.

Mr. John C. Powell, secretary of the association of turpentine operators in six Southern States, has established his headquarters at Savannah, and is prepared to do all in his power to carry out the objects of the association. Regarding his plans he says:

"Our purpose in organizing is, in brief, to get better prices for what we make. To do this we must reduce the production. Last year the supply of turpentine was greater than the demand, and the operators lost heavily. Unless steps are taken to regulate the output, the prospects are

that the trade will be ruined. At the rate at which we have been going for the last three years very soon all the pine trees in this State, and the other turpentine-producing States, too, would be destroyed, and what could we do then? It would be necessary to move somewhere else, and that would not be easy either, for there are few other places to go to. The South is now the greatest turpentine-producing section of the world. The bulk of the pine timber is in Georgia, Florida, Alabama, Mississippi and the Carolinas, and the inroads of the turpentine men on the former vast forests are already being noticed, and becoming a serious subject for consideration. If the destruction of the trees is kept up at the same rate the South will lose one of her greatest industries. We propose to regulate that.

"It is especially necessary to do so in Florida. We expect to reduce cutting 50 per cent. This State produces perhaps as fine or better turpentine than any. While the pine trees are not as large as in Georgia or North Carolina, they have more sap, since they are in a warmer climate, and do not use up their sap in protecting themselves against cold weather. The quality of the sap which is used for turpentine is very fine in this State."

Lumber Notes.

Receipts of lumber at the port of New Orleans last week amounted to 1,760,000 feet, and for the season 40,003,296 feet, against 44,700,121 feet last season.

The Kirkland Lumber Co., at Tampa, Fla., has been chartered, with a capital stock of \$10,000. The incorporators are Arthur Kirkland, S. L. Varnadoe and J. A. Cranford.

The Arklate Lumber Co. of Texarkana, Texas, has been chartered, with a capital stock of \$100,000. The incorporators are C. W. McWilliams, J. T. Ousley and Geo. J. Armistead.

The Pierpont Manufacturing Co. of Savannah, Ga., will add to its plant machinery for the manufacture of tubs. Plans have been drawn for a building that is to be used for this new branch of the enterprise.

The mountain cedar industry in the vicinity of Marble Falls, Texas, is reported unusually active. Large shipments have recently been made by the exporting firm of W. H. Reed & Co. to Europe.

The Montgomery Sash, Door & Blind Co. of Montgomery, whose plant was recently completed, is now in full operation turning out a high grade of builders' material, which is being shipped to all points in Alabama and adjoining States.

It is stated that the firm of Ketchum & McLean of Chicago, Ill., has purchased the Donnell planing mill at Tuscaloosa, Ala. The mill will be improved and dry-houses erected and other buildings added necessary for the extension of the business.

The Levert Lumber Co. of Plaquemine, La., is erecting a large saw-mill on Bayou Plaquemine. This mill will have a capacity of about 10,000,000 feet a year. The structure now being erected is one of the finest of the kind ever built in the State.

The Lathrop-Hatton Lumber Co. of Riverside, Ala., has recently closed a deal for 1500 acres of timber in Coosa county, Alabama. It is understood that there is a probability that mills will be erected by the company on this tract to cut the timber.

Shipments of wood products last week from the port of Mobile were as follows: Sawn timber, 148,713 cubic feet; hewn timber, 15,587 feet; yellow-pine lumber, 528,410 feet; poplar, 690 cubic feet; oak

timber, 10,620 cubic feet; shingles, 271,050; staves, 20,474, and crossties, 18,242.

The oak timber manufacturers in North Alabama are very much encouraged over the location of the \$150,000 spoke factory at Huntsville, Ala., by Messrs. Joseph Michiner and W. E. Henderson of Troy, Ala. A site has been selected in West Huntsville, and work on the new plant will start at once, and will employ over 200 men.

At a sale of pine timber land in Grant parish, Louisiana, last week the various lots offered were sold at prices ranging from \$3 to \$7.75 per acre. Nearly all of the land sold for more than the appraisement. The increase in its valuation is due to the construction of the Shreveport & Red River Valley Railroad, which passes through it.

It is stated that the J. L. Fischer Lumber & Manufacturing Co. of Lake Providence, La., has purchased a building in that town and will start a furniture factory. As soon as necessary arrangements can be made machinery will be installed and the work commenced. The factory will be operated in connection with the timber company, and will work up lumber from its mills.

The statistics of the census bureau on the manufacturing and mechanical industries of Mississippi for 1900 were announced on the 14th inst. The report shows a capital of \$35,807,419 in the 4772 establishments reporting.

The gross value of the products is returned at \$40,431,384, with a net value of \$27,813,332, representing the increase in raw materials resulting from manufacturing processes. The manufacture of lumber and timber products is the most important industry of the State, employing almost 37 per cent. of all wage-earners of the State, with almost 39 per cent. of the total values of all products of the State.

The Georgia Saw-Mill Association held its regular monthly meeting at Tifton, Ga., on the 11th inst. The various reports from members as to the condition of the market and general situation in the various departments of the lumber industry were very satisfactory. The demand and general condition of the market are said to be unusually good, and an increase in prices on some grades were reported. A general advance was postponed until the January meeting, when new association price-lists will be issued. H. H. Tift, J. L. Ensign and W. B. Stilwell were appointed a committee to attend the Manufacturers' Association, to be held at Memphis, Tenn., January 15, to present the work done by the Georgia Association toward regulating car equipments and to ask its co-operation.

The 100 delegates to the rice convention at Crowley, La., last week adopted a form of permanent character and elected S. A. Knapp, president; M. Abbott, Oswald Wilson, Delaney Evans and S. L. Breaux, vice-president; A. B. Allison, secretary, and H. C. Drew, treasurer.

The sales in the Joplin (Mo.) district during the week ended December 15 amounted to 9,651,250 pounds of zinc ore and 1,126,180 pounds of lead ore, valued in all at \$159,197. Zinc advanced during the week to \$32 a ton, the highest price in twenty months.

Of the 13,834 short tons of ground flint and 18,611 short tons of crude flint produced in the country in 1900, Maryland furnished 3344 tons of the first and 1904 tons of the second.

The Board of Trade of Wheeling, W. Va., has elected George A. Laughlin, president, and Paul Raymann and John Waterhouse, vice-presidents.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,
Baltimore, Md., December 18.

The market for phosphate rock has ruled quiet during the past week, and few transactions have been recorded. Fertilizer manufacturers are not adding to their stocks at the moment, and very little business is expected until after the holidays. Reports from Southern phosphate fields continue to show a good movement in all mining sections, with shipments to ports rather larger than last month. Tennessee rock is going out of Pensacola in good shipments, and advices from the Mt. Pleasant phosphate field in Tennessee are generally of an encouraging character. The various companies engaged in mining expect the output for 1902 to greatly exceed that of the present year. Prices for both domestic and foreign rock hold firm. In Florida the market for both pebble and hard rock is fairly active, with a good foreign demand, and prices firm and a shade higher. Shipments from the ports are very heavy for the present month, and for January also a good trade is expected, as a number of vessels are due to load early in that month. South Carolina rock is steady, with better demand from both domestic and foreign ports.

Fertilizer Ingredients.

The market for animal ammoniates during the week has ruled fairly active, with the list of values about steady. The demand from the East and South is moderate, while advices from the West report the market active and firmer. Buyers have been taking tankage and dried blood in moderate quantities, but there is no disposition to add largely to supplies. Sulphate of ammonia is firmer. Nitrate of soda is steady.

The following table represents the prices current at this date:

Sulphate of ammonia (gas).....	\$2 75	@ 2 77½
Nitrate of soda, spot Balti.....	1 90	@ 1 92½
Blood.....	2 7½	@ 2 30
Azotine (beef).....	2 30	—
Azotine (pork).....	2 30	—
Tankage (concentrated).....	2 17½	@ 2 20
Tankage (9 and 20).....	2 25	& 10 6/10 2 30 & 10
Tankage (7 and 30).....	20 00	@ 20 50
Fish (dry).....	26 00	@ 27 00

Phosphate and Fertilizer Notes.

It is stated that the Virginia-Carolina Chemical Co. has applied to the New York Stock Exchange to list \$15,984,400 additional common stock.

Messrs. J. T. Craik, Sons & Co. are now mining phosphate rock in Giles county, Tennessee, about three miles from Pulaski. The grade of rock is said to be of a superior quality.

The Spanish steamer Ereaga was cleared last week from Pensacola, Fla., by the Gulf Transit Co. for Genoa via Newport News with 2300 tons of Tennessee phosphate rock and other cargo.

The plant of the Virginia-Carolina Chemical Co. at Albany, Ga., was partially destroyed by fire on the 11th inst. The fire started in the acid chamber, but was got under control before more than \$3000 damage had been done.

T. W. Pratt and other Huntsville capitalists have organized the Huntsville Cotton Oil & Fertilizer Co. at West Huntsville, Ala. The new industry will begin operations about the first of February. The company will manufacture a brand of fertilizer prescribed especially for the soil of Alabama.

The Atlantic Fisheries Co. of Wilmington, N. C., has closed its rendering plant until March 1, 1902, the season for menhaden having about ended. Workmen have already begun to improve and enlarge the plant for next season. A dry-house for the treatment of fish is being

built to take the place of the acid process, which is not so desirable.

The Savannah-Florida Phosphate Co. was incorporated last week at Savannah, Ga., with capital stock of \$100,000. The incorporators are Charles A. Gibbes, Arthur B. M. Gibbes, George A. Mercer, Jr., and C. G. Menninger. The company proposes to mine, dig, dredge, buy and sell phosphate rock and materials and other deposits of every character used in the manufacture of fertilizers and chemicals.

OIL NOTES.

Facts About Petroleum and Its Uses.

It is expected that work upon the pipe line of the Sam Houston Oil Co. at Beaumont will begin within thirty days.

A dispatch from Beaumont states that 5,000,000 barrels of Beaumont oil have been sold in one deal for use at St. Louis.

The San Antonio & Aransas Pass Railroad Co. is equipping a locomotive with oil-burning apparatus, and if the trial is successful will use oil as fuel, following the example of the Southern Pacific and other systems in the State of Texas.

A test of oil as fuel on a Standard Oil Co.'s tug at New York has been successfully made. The New York Journal of Commerce, referring to the experiment, says: "The advantages from the use of the oil-burner are that steam is obtained quicker, the heat produced is more intense, and the oil burns with a perfectly white flame. The engines are built on a new plan. Nine jets are ranged in the firebox. The oil is forced in by air pressure pumps. It is calculated that four barrels of oil is equivalent to one ton of coal. The cost of a barrel of oil is fifty cents, while coal by the ton costs the oil company \$3.25. The boat was given a severe test, and no more difficulty was had in towing a load than with a boat fired with coal. It is said that it will be given a further test, and if found continuously satisfactory all the company's tugs will be similarly equipped."

According to a dispatch from the City of Mexico, the textile manufacturers of the republic have been investigating the possibilities for marketing cotton goods in Central and South American countries, in competition with European and American makers.

Fifteen hundred barrels of cement were shipped last week to market by rail through Galveston. During the past year the exports of cement at Galveston have increased about 100 per cent.

The city council of Weatherford, Texas, has passed an ordinance exempting from taxation for ten years all factories employing at least 100 hands which shall be built before January, 1903.

State Auditor Cole of Mississippi reports that the 121 State banks of Mississippi have a capital of \$4,991,720.71, a surplus of \$738,583.39, and undivided profits of \$1,291,893.13.

The torpedo-boat destroyer Decatur, built by the William R. Trigg Shipbuilding Co. of Richmond, Va., exceeded on her trial trip in the Chesapeake bay the contract requirements.

During the fiscal year ended November 30, 1901, North Carolina granted charters to 375 companies, with authorized capital of \$26,458,385.

The Manufacturers' Association of Dallas, Texas, is enthusiastically at work for the promotion of the cause of home industry.

COTTONSEED OIL.

This department is open to the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

Cottonseed-Oil Notes.

About 3000 head of cattle are being fed in and near the city of Austin, Texas, on account of contracts made several months ago with the oil mill to purchase cottonseed hulls at \$3.50 per ton.

The machinery of the big 60-ton oil mill at Luling, Texas, was started on the 9th inst. with imposing ceremonies by the citizens. The company is well equipped with an up-to-date plant, and a successful crushing season is expected.

The Victor Cotton-Oil Mill at Yorkville, S. C., is now running on full time, working night and day. It is under the supervision of Mr. Cole of Gaffney, S. C. It has the latest approved machinery and every appliance for turning out large quantities of oil, seed, cake and hulls.

The market for cottonseed products at Dallas, Texas, during the past week closed quiet, with 33 to 33½ cents bid for prime crude oil, December shipment. Early in the week 35 cents was reached, with sales of several thousand barrels. Buyers, however, were scarce, and the market closed quiet and easy. Cottonseed meal and cake were strong and in good demand, the West paying the highest prices, although some export sales were reported at \$25 to \$25.50 per ton Galveston.

A movement is on foot at Natchez, Miss., to organize a cottonseed delinting company, and a charter of incorporation will be given out for publication in a few days. The prospective incorporators are E. H. Jackson, Natchez; E. C. Rhodes, L'Argent, La.; S. H. Lambdin, Jr., of Koontz, Fleming & Lambdin of Natchez, W. A. Percy of Memphis, M. F. Johnson of Vicksburg, H. S. Johnson of New Orleans, W. G. Walton of Concordia parish, Louisiana; W. A. S. Wheeler and Claude Pintard of Natchez. The plant will be located either in Vidalia or Natchez.

During the past month cottonseed products at Memphis, Tenn., have scored a sharp advance. Oil a month ago was slow sale at 27½ cents per gallon for prime crude, and last week it was in good demand at 34½ cents. Last week the Memphis Merchants' Exchange quotation committee placed the price of cottonseed at \$16 for both rail and river, while outside companies were said to have paid \$19.50 per ton. Receipts of cottonseed this season to the 12th, inclusive, amount to 1839 carloads and 375,833 sacks, an increase over last year of 191 cars and 59,327 sacks.

The following are the official quotations on cottonseed and cottonseed products as posted at the Cotton Exchange in New Orleans on the 16th inst.: Prime refined oil in barrels, 37½ cents per gallon; off refined oil in barrels, 36½ cents per gallon; prime crude oil, loose, 32½ cents per gallon; off do., nominal per gallon; prime cottonseed cake, \$27.50 per ton of 2240 pounds; off do., nominal; prime cottonseed meal, \$27.50 per ton of 2240 pounds; off do., nominal; soap stock, loose, 1.17 cents per pound; linters, per pound, choice, nominal; A, 3½ cents; B, 2½ cents; C, 2½ cents; cottonseed in sacks delivered in New Orleans, \$14.50 per ton of 2000 pounds; in bulk delivered in New Orleans, \$13.50 per ton of 2000 pounds.

A cargo of flour for export to Liverpool from Newport News on the steamship Rapidan consisted of 53,546 barrels.

MECHANICAL.

Electrical Equipment of an Up-to-Date Scotch Shipyard.

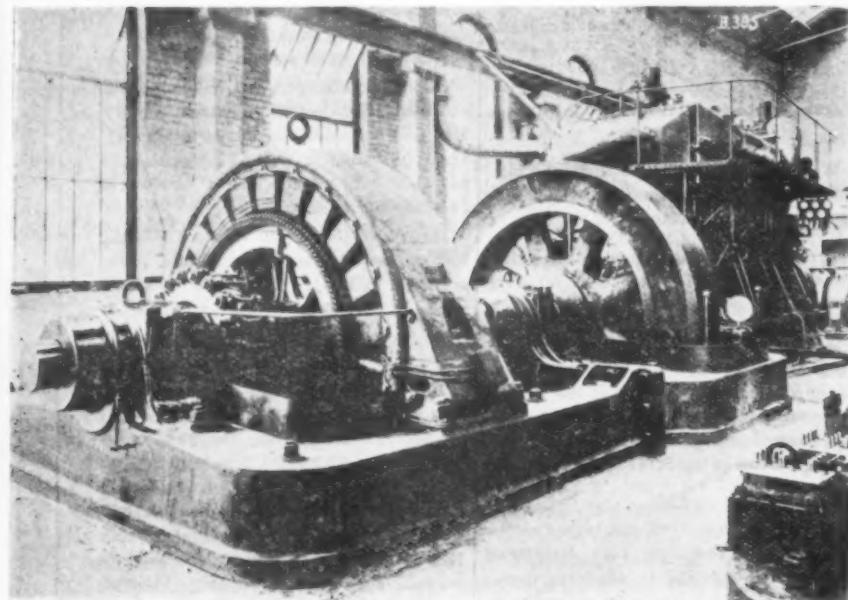
The Palmer Shipbuilding & Iron Co. of Jarrow-on-Tyne, Scotland, is one of the oldest and best-known engineering concerns in the world. The works are very

There are two generating units, each generating set consisting of a triple-expansion open-type marine engine of about 100 horse-power, operating in conjunction with a condensing plant, and direct-connected to a Westinghouse three-phase alternator, delivering 750 kilowatts at a pressure of 440 volts. The flywheel, eleven feet in diameter and weighing

house practice. The distributing circuits, with two exceptions, all branch from two large main feeders, one feeding the engine department and the other the shipyard department. The smaller independent circuits run from the engine department

Clark, Chapman & Co. under Westinghouse license.

The polyphase induction motor has two main elements—the primary, which is fixed and receives the current from the main supply, and the secondary, which is



WESTINGHOUSE GENERATOR DIRECT-CONNECTED TO STEAM ENGINE.

complete, and include everything from blast furnaces to machine shops, thus making it possible to carry out the building of vessels from the iron ore to the perfectly-finished ocean-going steamer. The shipbuilding department and the engine department have recently been equipped with electric apparatus for power distribution.

Formerly banks of Lancashire boilers were located at various points in the works and fed, by an extensive system of steam mains, a great number of small steam engines. In the shops the engines were mostly of the wall type, each driving by belt a long length of overhead shafting. In the yards the individual machines were, for the most part, driven by independent engines fed by underground steam mains. The greater part of the boiler plant being old and the necessity for a new power-plant equipment urgent, it was decided to adopt electrical driving, and Messrs. Clark, Chapman & Co. of Gateshead-on-Tyne were called upon to carry out the new arrangement and provide the requisite apparatus.

At the time when the new power plant was most required the works were exceedingly busy, and a system was therefore chosen, the installation of which would interfere as little as possible with the continuous output of the works. The extensive lengths of shafting and the numerous belts and pulleys were practically retained in their entirety, the steam engines being replaced by electric motors and the steam plant centralized at one point in the electric generating station. With this arrangement the economies resulting from the change were at once apparent. Although no definite comparative tests have yet been taken, there is considerable reduction in the quantity of fuel consumed for power generation.

The power plant is located in an independent building, a dividing wall across the center separating the boiler plant from the engines and generators. In the boiler-house there are installed four Lancashire boilers, working at a pressure of 150 pounds per square inch. Three of these boilers are kept constantly in use for the power load. They are hand-fired,

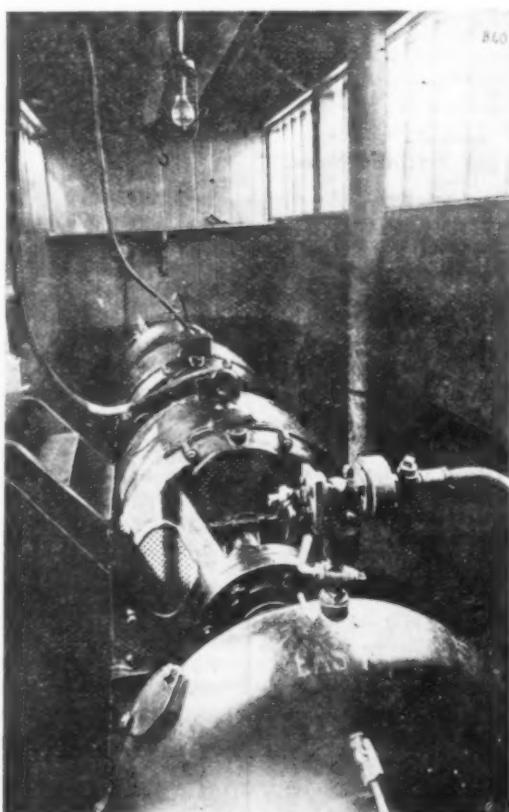
twenty-two tons, is set on two bearings between the engine and the alternator, and a flexible coupling connects the engine and the flywheel. The speed of the generating set is 160 revolutions per minute.

The main switchboard is located in the power-house. It consists of five marble panels—one exciter panel, two generator

panel, one to an ordinary board in the power station, the other to a pair of electrically-driven centrifugal pumps situated about sixty yards away in a small shed by the water-side. There are in all up-

the rotating part, and is not connected to any electrical circuit. The windings of the primary are so arranged that the polyphase current produces in it a rotating magnetic field. The rotation of the secondary is produced by the induction of low-pressure currents in its closed circuits by the magnetic field of the primary. This principle was discovered by Tesla, and the patents covering it are under Westinghouse control. There is no doubt that the present universal adoption of alternating currents for all power purposes owes more to the discovery and perfection of this motor than to any other cause. The extreme mechanical simplicity of the type "C" motor is one of its most important characteristics.

The primary, the fixed part or stator, consists of a hollow cylindrical core of soft steel ring stampings carrying the electrical winding in slots on its inner surface. The windings are built up of coils, machine-wound and thoroughly insulated before being placed in the slots. In the larger sizes of low-pressure machines copper strap or bars take the place of the wire coils. The core and winding of the primary are rigidly secured in a cast-iron enclosing cylinder, which forms the frame of the motor. The enclosing end plates or brackets of this cylinder carry the two shaft bearings of the rotating secondary. The core of the secondary is built up of soft steel laminations on an open spider. Rectangular copper bars are laid in slots in the core periphery, and are bolted at each end to massive copper rings. No current is led to the rotating part; there are no commutators, collecting rings or rubbing electrical contacts of any description, the only frictional surfaces in the machine being at the shaft bearings. The secondary conductor, being short-circuited purposely in the end rings, cannot develop any electrical fault, and the whole construction of the rotating part is one which gives extreme simplicity, rigidity and durability. It is thus perfectly adapted for work in dusty and exposed situations.



INDUCTION MOTORS OPERATING CENTRIFUGAL PUMPS.

panels and two feeder panels. Provision is made for the parallel running of the alternators. The switchboard is of similar manufacture to the generating plant, and the instruments, switches and general construction are in accordance with the well-known principles of Westing-

wards of eighty motors in use, aggregating a total capacity of over 1500 horse-power. The largest sizes, those of twenty horse-power and upwards, were supplied by the British Westinghouse Electric & Manufacturing Co., and are of its well-known type "C;" the rest were built by Messrs.

and requires the minimum of attention. Of the motors installed at Messrs. Palmers' works, the smaller sizes up to twenty horse-power are started by coupling direct to the 400-volt mains; the larger are started through an auto-starter, which consists of a double-throw switch working in conjunction with a pair of small transformers. With the switch on in one position, the motor receives current at a reduced pressure. The transformers are arranged with a series of loop wires from the winding, so that the value of the starting pressure may be adjusted to give the most suitable starting torque. Throwing the switches over in the other direction after starting places the motor direct on the supply circuit. The auto-starter consists of a cast-iron box, containing the transformers, on the lid of which the two-way switch is fixed. These starting switches may be placed at any distance from the motor, an advantage when motors are necessarily installed in places difficult of access. The various motors distributed about the shops have, as a rule, their starting switches of auto-starters placed close alongside. The starting switches of the tools in the yard are generally placed in a small iron box fixed against the standard of the machine tool.

The economies resulting from the change in driving power have proved to be considerable. Compared with the steam power as before used, the principal saving in the cost of energy is due to: (a) The centralization of the power plant, whereby the plant operates economically in large units at about full load. (b) The efficiency of this transmission of electric power along wires; idle lengths of wire, although coupled to the live supply circuit, do not use up any energy, as would by condensation a length of steam pipe under similar conditions. (c) The current passing into an electric motor is practically in direct proportion to the load on the motor. (d) Motors are so easily started and stopped by the simple closing or opening of the switch that there is no excuse for leaving one running empty for even a short space of time. (e) No expert attendance and very little attention is required by the motors or any part of the distributing apparatus.

It will be seen, therefore, that for such work as the independent driving of the many machines—punches, shears, hoists, pumps, etc.—in the yard electrical power introduces enormous advantages and economy; also that in the shops considerable saving is sure to result from the substitution of an electric motor for each steam engine previously needed for driving shafting and the several machines connected thereto.

It must not be overlooked that the motors labor under the disadvantage of having the long lengths of power-consuming shafting and belts between them and the machines to be driven, and it is here that further improvement will undoubtedly be made in the near future. The principle, as adopted in the yard, of "one motor, one machine," could, with judgment, be applied to give excellent results in many instances in the workshops.

G. I. Floor Outlet Boxes.

The attention of electrical engineers, contractors and all interested in electrical construction work is called to the new G.



FIG. 3.

I. floor outlet box illustrated. This outlet box is specially adapted in construction work for bringing wires to floor outlets

for making connections for electric lights, fans, push-buttons, or telephones on desks, tables or store counters. Floor outlet boxes have hitherto been one of the weakest points of a wiring installa-



FIG. 4.

tion, being exposed to water and dirt when floors are scrubbed and swept, and from the nature of their locations subjected to hard usage. The G. I. box has



FIG. 5.

been designed to successfully meet these conditions. It is very strong and substantial, the box proper made of heavy cast iron and the floor plate of brass or



FIG. 6.

iron three-sixteenths inch thick. It will not sink in the floor when subjected to heavy weight. It is thoroughly water and dust proof, being

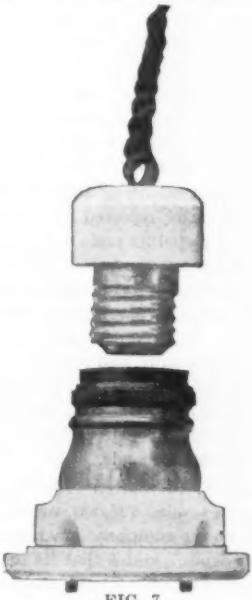


FIG. 7.

provided with gaskets at the joints and leaded where screw thread connections are made. It is adjustable with respect to floor level, a most important feature, which prevents the wire men from wast-

ing time in placing the box at an exact level, as this can be done in a moment after finished floor is in place by simply turning the top of the box. The box can be used for electric lights, fans, push-buttons or telephones without any interchange of parts, a standard socket and plug being used for connections inside, which plugs are usually kept in stock by engineers, and are all interchangeable.

It is accessible after being installed, and free from liability to injury, because the flexible cord comes from the side of the outlet nozzle. When not in use the

for Messrs. George Callahan & Co. to conceive a new plan for belt-joining, which has already become popular on account of its self-evident advantages.

The invention, which is herewith illustrated, consists of a braided cord made of a special fiber of great tensile strength, and is sewed into the belt in a way that not only gives great holding power, but as the holes required are very small and in a double line, the strength of belt is not decreased, as it is with rawhide lacing, which requires large holes. The thickness and bunching up of the rawhide

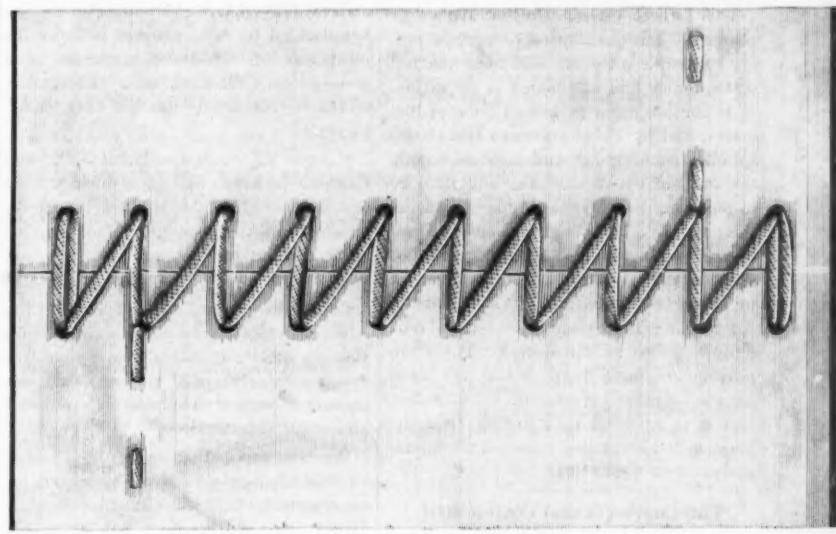


FIG. 1—DEVICE FOR JOINING BELTS.

brass plug can be screwed into floor plate, and will be perfectly water-tight and flush with the floor. If cords are not desired, iron or brass tubing can be connected to the gas-pipe thread in floor plate and extended to underside of desk or table.

Fig. 2 shows the box with the nozzle removed and flush plug (Fig. 3) in place. Figs. 4 and 5 are double and single brass outlet nozzles, the holes being bushed with hard rubber screwed into nozzle and having rounded edges. Fig. 6 is an outlet nozzle for the top of conduit extension, when latter is screwed in top of floor

is entirely avoided, the fiber cord lacing giving a smooth joint.

It has all the merits of wire, with many advantages over wire. As it is soft, it cannot injure the workman's hands. Unlike wire, it can be used on old belts without tearing out. Before being regularly placed on the market this article was subjected to long tests in mills and woodworking establishments where belts were run at high speed and under severe strain, where it stood the test. Some very convincing testimonials have been given of its long endurance and smooth-

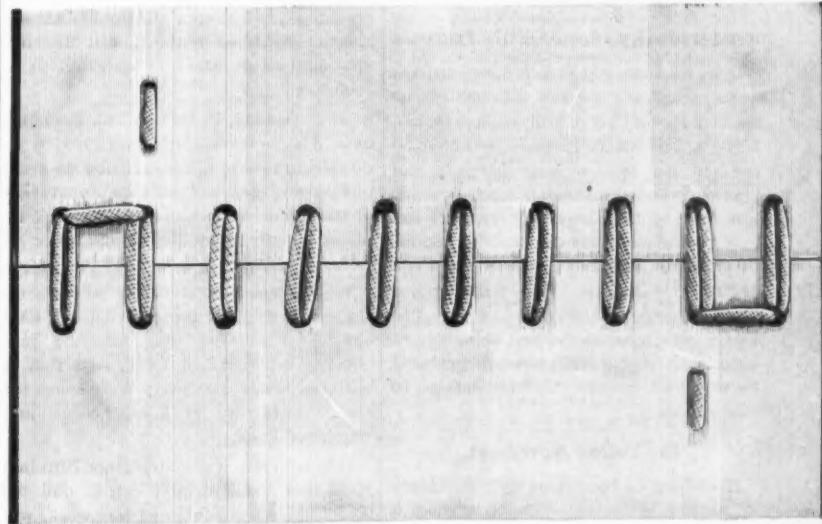


FIG. 2—DEVICE FOR JOINING BELTS.

plate. Fig. 7 shows standard porcelain keyless socket, G. E. No. 50745, and fuse plug No. 3089. Boxes are furnished with or without these receptacles and plugs.

Further details can be obtained of the General Incandescent Arc Light Co., 572-578 First avenue, New York.

Valuable Device for Joining Belts.

An always interesting subject to machinery users is that of joining belts, for they are aware that this is one of the most important features of modern factory equipment. It apparently has remained

ness. Its application to a belt is as simple as sewing. The cuts herewith show both front and back of belt.

Messrs. Callahan & Co. offer to send free samples to any parties wishing to test it before purchasing. They also have a variety of other specialties for mill and factory use. Their address is 218 Front street, New York.

The Board of Trade of Norfolk has secured subscriptions amounting to \$20,000 toward the erection of a \$75,000 building which it will occupy.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills, or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

Laurel (Miss.) Cotton Mills.

The Laurel (Miss.) Cotton Mills has completed the installation of the machinery to double its plant, and now has 10,000 spindles and 320 looms in operation. It is the intention to install another 320 looms, and by February have the 10,000 spindles running day and night to supply the total of 640 looms that will then be in position, these looms to operate during the day only. The improvements will increase production to 160,000 yards of sheeting per week and afford employment to about 500 operatives. An equipment for making 1000 pounds of cotton rope daily has also been installed. These improvements more than double the company's original investment of \$100,000, and it is rumored that during 1902 the plant will be further enlarged to an investment of \$1,000,000.

The Cuero (Texas) Cotton Mill.

Among the new mills being built in Texas is that of the Cuero Cotton Mill at Cuero, and contract for the required machinery, tools and other equipment has been placed. The building is to contain 5000 spindles and 160 looms for the production of brown sheetings, this equipment to be driven electrically by inverted inductive motors supplied by the General Electric Co. of New York. The electrical current will be furnished by the Buelo Power & Irrigation Co., which develops it at a water-power three miles from the mill. Plans and specifications and the entire equipment for the cotton factory are being furnished by the Lowell Machine Shop of Lowell, Mass. Capitalization of company is \$100,000.

Henderson (Ky.) Cotton Mills' Increase

It is announced that arrangements are about completed for the enlargement of the Henderson Cotton Mills of Henderson, Ky. A decision to increase by about 50 per cent. was reached early this year, and plans for the improvements were obtained last May by the company. Contract has now been placed with the Lowell Machine Shop of Lowell, Mass., to supply machinery for the increase. The company has been operating 35,000 spindles and 916 looms until now, its product being brown sheetings. About \$250,000 will probably be expended for the improvements to be undertaken.

The Cotton Movement.

According to the report by Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, the amount of cotton brought into sight during the 104 days of the present season was 5,603,091 bales, a decrease under same period last year of 68,447; the exports were 2,989,022 bales, an increase of 213,601 bales; takings by Northern spinners \$28,751, a decrease of 71,032 bales; by Southern spinners 601,196, an increase of 99,836 bales.

Textile Notes.

It is rumored at Sanford, N. C., that parties are investigating the waters of a creek near that town with a view to establishing a bleachery.

Messrs. Davis & S. B. Kinard, Towa-

liga, Ga., propose installing equipment for the production of knit hosiery and roping, and want to buy the necessary machinery.

Riverview Knitting Mills of Tarboro, N. C., was destroyed by fire last week, causing a loss of about \$50,000, with insurance reported as \$35,000. The plant had 136 knitting machines, etc.

Catawba Woolen Mills of Hickory, N. C., reported incorporated last week, has an established plant at Plateau, N. C., manufacturing woolen yarns. The company's office is at Hickory.

Hope Mills (N. C.) Manufacturing Co. has decided to build another mill for the reception of additional spindles and looms, also a finishing mill. The extent of the improvements has not been stated as yet.

Messrs. T. W. McCord and J. L. McCord of Jackson, Ga., have incorporated the McCord Milling & Manufacturing Co. to build knitting, spinning and weaving mill. Character of product not announced yet.

Benjamin Russell of Alexander City, Ala., contemplates establishing a mill for the production of ladies' underwear, and asks manufacturers of the necessary machinery to submit estimates on equipment and other information.

Work is proceeding on the doubling of the Harmony Grove (Ga.) Mills, an improvement to cost \$100,000 that was announced last September. The additional structure is a two-story building to hold 4160 spindles and 156 looms, etc.

Messrs. Pomeroy Bros. of Graham, N. C., will build a cotton factory, but as to the extent of the enterprise no report has been made. Brick and lumber have been ordered for the buildings, and their construction will be commenced at once.

Buckhannon (W. Va.) Woolen Mills states that it expects to build a modern plant to replace its \$18,000 plant that was destroyed by fire recently. When a definite decision has been reached as to the new mill, particulars will be stated.

Enterprise (Ga.) Cotton Mills will be ready for operation soon. This plant will have 6000 spindles, manufacturing duck, osnaburgs, twine, etc., and its machinery is being furnished by the Lowell Machine Shop of Lowell, Mass. Capitalization is \$100,000.

W. J. Oswald, P. O. Box 243, Birmingham, Ala., is investigating with a view to establishing a mill for knitting hosiery, underwear, etc., and asks manufacturers of the required machinery to submit estimates on cost of equipment and other information.

Willingham Cotton Mills of Macon, Ga., referring to its addition of 4000 spindles and other complementary machinery, reported last week, says that it will also install 120 heavy wide looms for the manufacture of hose, belting and numbered duck.

It is stated in a dispatch from Birmingham that the proposed cotton mill for Pell City, Ala., mentioned last week, will be built by a \$600,000 company that Boston and Lowell (Mass.) parties will organize, and that Geo. W. Pratt of Atlanta, Ga., will be president.

The Weatherford (Texas) Board of Trade announces that a textile mill of considerable extent will be erected in Weatherford. The work of constructing said plant will commence within thirty days, and its product will be woolen cloth and camel's-hair press-cloth.

Milstead Manufacturing Co. of Conyers, Ga., reported incorporated last month, intends to build a cotton mill at an expenditure of possibly \$200,000. A water-power has been purchased, to be de-

veloped for operation of the proposed factory. Frank D. Milstead is manager of the enterprise.

Messrs. K. C. Menzies, A. A. Shuford and T. J. Martin of Hickory, N. C., are promoting the knitting-mill company reported last week as being organized. The capital stock is \$25,000, and permanent organization will be effected January 1. Building will be completed and machinery in position by April 1.

Messrs. Keller & Dunker of Del Rio, Texas, will establish a woolen mill, the manufacture of blankets to be commenced within sixty days. The equipment will include set of cards, three looms, etc., the production to be especially saddle blankets 33x60 inches, weighing from four to six pounds.

Levi Cotton Mills Co. of Rutherfordton, N. C., mentioned last week as to increase capital by \$100,000, will install additional machinery. No plans have been made as to size of building necessary, but looms for the mill's 6240 spindles will be purchased. The product will then be medium-weight sheetings.

It is announced that the scheme of working convicts in the cotton mill owned by the State of Alabama is a success. Seventy-three convicts, most of them women and boys, are leased to the operators of the mill, and the State is deriving a revenue therefrom. The white and black convicts are employed in separate departments.

Aetna Cotton Mills of Union, S. C., has decided to increase capital from \$125,000 to \$200,000, this capitalization to be equally divided into common and preferred stock. The company has its mill in course of construction for an equipment of 10,000 spindles and 300 looms at the commencement of operations. There is space in the building for 5000 spindles and 150 looms further.

Messrs. R. B. Phillips and Geo. C. Wallace, reported last week as having leased the Alden Knitting Mills at Paducah, Ky., intend to increase the capacity of their mill by the immediate installation of 100 new knitting machines, the number now in position being eighty-one. Machinery will be continually installed until the production reaches 1000 dozen pairs of hose and half-hose daily, employing from 250 to 300 hands.

The stockholders of the Lanett Cotton Mills, West Point Manufacturing Co., Riverdale Cotton Mills, Lanett Bleachery and Dye Works and Chattahoochee Valley Railway Co. held their annual meeting at West Point, Ga., during the past week. It was shown that the profits of the year were not equal to former years, but the usual dividends were declared and the officers re-elected. These mills have 90,000 spindles and 2338 looms.

New Century Knitting Mills of Dallas, Texas, previously reported as organized, etc., has completed its main building, containing 15,000 square feet of floor space. The machinery has been contracted for, 3000 spindles to be operated at the start. J. E. Wiley, a prominent negro lawyer, formed this company, and proposes to utilize negro labor exclusively in the mill. An investment of \$50,000 is to be made, \$10,000 subscribed by local parties and \$40,000 to be issued as bonds.

Kinston (N. C.) Cotton Mills, reported last week as issuing \$25,000 worth of preferred stock for additional machinery and operating capital, states that its improvements are limited. Some intermediate machinery and skein winders are being installed to enable the company to vary its production, and where it has heretofore made only knitting yarns, will be prepared to furnish weaving yarns hereafter. About fifteen more operatives will

be required. This company's original capitalization is \$80,000, and it has 10,000 spindles.

Buffalo Cotton Mills of Union, S. C., a new plant, commenced partial operation last week, the product to be 36-inch three-yard heavy goods for export. This company intends to have 50,000 spindles and 1200 looms when the full complement is in position. Messrs. W. B. Smith Whaley & Co. of Columbia, S. C., furnished plans and specifications for this plant. The company has a capitalization of \$600,000, and is largely composed of stockholders in the Union Cotton Mills, a plant of 87,362 spindles and 2300 looms, working on fine sheetings.

It is reported that the Riverside Cotton Mills of Danville, Va., has decided definitely upon the thorough development of the power of the Dan river, an extension of its enterprise that has been under consideration for about a year. A dam will be constructed near the city, and the power so obtained is to be transmitted electrically for the operation of factories. The company will build another cotton mill to utilize a portion of the new power. At present the Riverside plant has 67,500 spindles and 2771 looms. The company writes the Manufacturers' Record that nothing definite has as yet been decided upon.

The steamship *El Siglo*, the latest addition to the Morgan Line, plying between New York and New Orleans, has made her first trip over the route. *El Siglo* was built at the plant of the Newport News Shipbuilding & Dry-Dock Co., and cost \$600,000. She is a duplicate of the other vessel recently built for the same service, being 406 feet in length and 48 feet beam. Her engines develop 4000 horse-power and give her a speed of fifteen knots an hour.

More than 86 per cent. of the production of fluor-spar in the United States in 1900 was obtained from Caldwell, Crittenden and Livingston counties, Kentucky, where the deposits have been developed since 1898. The rest of it came from the district near Rosiclare, Ill. The production in 1900 was 18,450 short tons, an increase since 1898 of nearly 11,000 tons. Its value in 1900 was \$94,500.

The plan to locate a subtreasury at Savannah, Ga., is strongly indorsed by business men and financiers of that city. President Mills B. Lane of the Citizens' Bank of Savannah believes that it would be a great advantage not only to local banks, but those in the section tributary to the city. A bill has been introduced in Congress in favor of the measure.

The Gulf Transit Co. is understood to be negotiating for the steamship Northeastern to carry coal from Pensacola to Mexico. The Louisville & Nashville Railroad Co. has made a contract to deliver 100,000 tons of coal at the port of Tampico, and if the vessel is secured, will use it for this purpose.

Messrs. Collier & Son of Bristol, England, are looking for a good American connection which may supply bacon and hams especially cured for export to a hot climate, and also hydraulic pressed chopped hay, buckwheat and very heavy seed oats.

Since May 23, 1900, 2184 buildings have been erected in Baltimore, which now has 108,179. Of these, 87,507 are dwellings, 13,461 business houses, 5470 stables, 1029 factories, 411 churches and 301 educational buildings.

The completion of a canal tapping the Brazos river is expected to add 20,000 acres of land to the rice-growing area about Alvin, Texas.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD
 seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in a town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and it is often advisable to add the names of one or more incorporators as an aid to the postmaster in delivering mail.

ALABAMA.

Alexander City—Knitting Mill.—Benjamin Russell contemplates establishing a knitting mill.*

Attalla—Pants and Overall Factory.—J. Henri Lester, J. W. Wood of Attalla and Jack Hargrove of Birmingham have organized as Lester, Wood & Co. for establishment of pants and overall factory.

Birmingham—Machine Shop and Car Barn.—Birmingham Railway, Light & Power Co. has purchased site at \$25,000, and will build machine shop and car barn to cost \$100,000; Robert Jamison, president.

Birmingham—Bottling Works.—Jos. P. Golston and Sterling A. Wood of Birmingham, Henry Boerner of Chattanooga, Tenn., and others have incorporated Golston Bottling Co., with capital of \$10,000, for manufacture of non-intoxyating drinks.

Birmingham—Knitting Mill.—W. J. Oswald, P. O. Box 243, contemplates establishing a knitting mill.*

Brookwood—Coal Mine.—Alabama Consolidated Coal & Iron Co. of Birmingham will open a new coal mine at Brookwood. Address T. G. Bush, president.

Childersburg—Cotton Mill.—It is reported that Frank Rich of Nashville, Tenn., and Northern capitalists contemplate erecting cotton mill near Childersburg.

Ensley—Realty Company.—Investors Realty Co., with capital of \$25,000, has been incorporated by J. J. Walker, N. W. Scott and E. B. Pennington.

Hollins—Planing Mill.—W. F. May & Co. of Birmingham, Ala., have received contract for erection of additional machine shop and planing mill for Sample Lumber Co. at Hollins.

Huntsville—Cotton-oil Mill and Fertilizer Factory.—T. W. Pratt and others have organized Huntsville Cotton Oil & Fertilizer Co. to operate an oil mill and fertilizer factory.

Huntsville—Steam Ferry.—W. R. Johnson of Whitesburg, Ala., contemplates establishing a steam ferry at Huntsville.

Mobile—Pencil Factory.—W. H. Parrish of Richmond, Va., is investigating with a view to establishing a plant in Mobile to manufacture lead-pencil blanks.

Mobile—Realty Company.—Co-operative Realty Co. has been incorporated, with capital of \$25,000, by Joshua D. Terrell, Comer Sims, Edward W. Goss and others.

Mobile—Realty Company.—Chartered: Realty Investment Co., with capital of \$25,000, by George Fearn, Stewart Brooks, W. H. Louisell and others.

New Decatur—Telephone System.—Frank C. Bell and W. C. Bell of Michigan have made a proposition to construct telephone system at New Decatur.

Pel City—Cotton Mill.—It is reported that Boston and Lowell (Mass.) parties will organize \$600,000 company to build cotton factory, and that George W. Pratt of Atlanta, Ga., will be president.

Selma—Repair Shops.—It is reported that the Louisville & Nashville Railroad Co. will build large repair shops in Selma. Geo. E. Evans is general manager, Louisville, Ky.

Steele—Oil Wells.—Ira S. Drake has options on 6000 acres of land in North Alabama, as recently reported, and will drill for oil at once.*

ARKANSAS.

Black Rock—Finishing Plant.—Myers & McLeod are building a plant for finishing wagon stock.

Corning—Lumber Company.—Chartered: W. Weeden Lumber Co., with capital of \$15,000, by Henry C. Sellmeyer, A. M. Weeden and Roe Shearer.

Fort Smith—Mining.—Chartered: The Johnson Company, to conduct general mining business, by H. H. McKeahan, W. B. Stewart, Edward A. Kline and others, all of Cleveland, Ohio.

Fort Smith—Packing Plant.—W. A. Heitzberg and W. C. Handford of St. Louis, Mo., will, it is reported, establish a \$150,000 packing plant at Fort Smith.

Hot Springs—Land Improvement.—Sumter Land & Improvement Co. has been incorporated, with capital of \$25,000, by Orlando H. Sumter, president; W. E. Thomas, secretary, and others.

Huntington—Lead and Zinc Mines.—Bennett Brown (president), S. T. Motley (vice-president), H. E. Cunningham (secretary) and H. Meyer (treasurer) have incorporated Huntington Lead & Zinc Co., with capital stock of \$50,000.

Jonesboro—Light and Power Plant.—People's Light & Power Co., with capital of \$20,000, by H. H. Houghton, R. H. Meyer, B. Gregg and others.

Lead Hill—Lead and Zinc Mines.—T. S. B. Apollos of Ardmore, I. T., owns lead and zinc properties at Lead Hill (as recently reported), and would like to interest capitalists in development of same. Address for the present at Tompkinsville, Ky.

Little Rock—Cemetery.—Commissioners of Oakland Cemetery have acquired an additional tract of land, and will expend \$8000 in improving same.

Little Rock—Investment Company.—Chocaw Investment Co. has been incorporated, with capital stock of \$100,000, by J. W. McLeod, president; E. B. Pierce, treasurer; T. B. Buzbee, secretary, and others.

Little Rock—Embalming, etc.—Chartered: Ruebel & Co., with capital of \$3000, to conduct undertaking and embalming business, by J. Kirk Tunnah, president; Farrar L. McCain, vice-president and secretary.

Searcy—Electric-light Plant and Water-works.—Water-works and electric plant will be installed by forming improvement district. Address John V. Roberts, mayor.*

FLORIDA.

Fernandina—Dock and Realty Company.—J. Mizell is president; S. Chadwick, vice-president; W. E. Page, secretary, and W. O. Jeffreys, treasurer, of Fernandina Dock & Realty Co., reported recently as incorporated.

Pensacola—Mercantile.—Chartered: Lewis Bear & Co., with capital stock of \$100,000, by Morris Bear, president, and others.

Tampa—Cigar Factory.—Bustillo Bros. & Diaz have awarded contract to Macfarlane Investment Co. at \$30,000 for erection of their proposed cigar factory.

Tampa—Electric-light Plant.—West Tampa will vote January 7 on issuance of \$10,000 of bonds for installation of an electric plant in connection with its water-works. Address "The Mayor."

GEORGIA.

Atlanta—Neckware Factory.—Rolinson Neckware Co. has been incorporated, with capital of \$10,000, and privilege of increasing to \$100,000, for the manufacture of neckware; factory has been established.

Atlanta—Seal and Stamp Company.—Dixie Seal & Stamp Co. has been incorporated (under South Carolina laws), with capital of \$5000.

Atlanta—Lumber Company.—Southern Pine & Hardwood Co. has been incorporated, with capital of \$2500, by L. D. Hoppe, W. H. Vannerson, N. Alexander and others.

Atlanta—Chemical Company.—Cherokee Chemical Co. has been incorporated, with capital of \$25,000, by Henry S. Miles and Virgil Jones for the manufacture of fertilizers, etc.

Columbus—Vinegar Factory.—T. J. Pearce, R. J. Belser and M. T. Grace have incorporated Columbus Vinegar Co., with capital of \$10,000, for manufacture of vinegar, etc.

Columbus—Candy Factory.—T. J. Pearce, J. Ralston Cargill, John S. Garner and S. S. Brown have incorporated Pearce-Cargill Company, with capital of \$50,000, for manufacture of candy.

Conyers—Cotton Mill.—Milstead Manufacturing Co., reported incorporated recently, intends to build \$200,000 cotton mill, and has purchased water-power to be developed for utilization in said mill. Frank D. Milstead is manager.

Jackson—Textile Mill.—T. W. and J. L. McCord have incorporated McCord Milling & Manufacturing Co. to build knitting, spinning and weaving mill.

McRae—Electric Plant, Water-works, etc. City has decided by popular vote to issue bonds for proposed construction of water-works, electric plant and for other public improvements. Address "The Mayor."

Savannah—Fertilizer Factory.—Chas. A. Gibbes, Arthur B. M. Gibbes, Geo. A. Mercer, Jr., and C. G. Memminger have incorporated Savannah-Florida Phosphate Co. for development of phosphate mines and manufacture of fertilizers, chemicals, etc.; capital stock \$100,000.

Towaliga—Knitting Mill.—Davis & S. B. Kinard propose installing equipment for making hosiery and roping.*

KENTUCKY.

Henderson—Cotton Mill.—Henderson Cotton Mills has ordered machinery for its increase of about 50 per cent., reported last May as decided upon; company has now 35,000 spindles and 916 looms; about \$250,000 will be expended.

Hopkinsville—Oil Wells.—South Kentucky Oil Co. has made contract with Daniel Boone Development Co. of St. Louis, Mo., to develop 23,000 acres of oil lands.

Mayfield—Pants Factory.—Merit Pants Co. has increased its capital stock from \$40,000 to \$100,000.

Paducah—Knitting Mill.—R. B. Phillips and Geo. C. Wallace have leased and will operate Alden Knitting Mills; 100 knitting machines will be added; now has eighty-one machines.

Russell—Oil Wells.—Russell County Oil Co. has been incorporated, with capital of \$2500, by W. S. Stone and R. C. Humble.

Somerset—Oil Wells.—Science Hill Oil & Gas Co. has been incorporated, with capital of \$25,000, by W. J. Goodwin, C. Langdon and J. F. Eades.

Somers—Oil Refineries.—Kentucky & Ohio Oil & Refining Co. has been incorporated by J. B. Jones, C. C. Harris, G. W. Stephen and W. L. Baker of Tiffin, Ohio, with capital stock of \$200,000, to construct a refinery for the output of the Wayne county field and to construct a pipe line from the field to refineries in Bath county to develop the lubricating field. General offices will be in Lexington, Ky.

Versailles—Oil, Gas and Lead Properties.—Percy Crutcher and associates will organize company to prospect for oil, gas and lead on property of James Scott in Woodford county.

LOUISIANA.

Jennings—Water-works and Sewerage.—City will vote on issuance of bonds for water-works and sewerage, as recently reported. Address "The Mayor."

Lake Providence—Furniture Factory.—J. L. Fischer Lumber & Manufacturing Co., J.

L. Fischer, president, will establish a furniture factory in connection with its lumber business.

New Orleans—Machinery Works.—Nash & Dowdle of Chicago, Ill., contractors, will establish a plant at New Orleans for the manufacture of supplies, materials and machinery.

New Orleans—Mercantile.—C. S. Aron and others have incorporated Aron Company, Limited, with capital of \$10,000, to conduct dry goods business.

New Orleans—Piano Factory.—A. H. Stratton, Wm. Zettmann, John D. Townsend and others have incorporated Stratton Piano Manufacturing Co., Limited, with capital of \$50,000, for manufacture of pianos and other musical instruments.

New Orleans—Creosoting Plant.—S. W. Lebrot and I. W. Simmons of Pascagoula, Miss., will establish a plant for creosoted piling and lumber at New Orleans.

Pearl River—Lumber Mills.—Heidelbach & Penn of Danville, Va., have secured controlling interest in the mills of Pearl River Manufacturing Co., recently established, and will add machinery for enlarging the plant.

Plaquemine—Lumber Mill.—Levert Lumber Co. is erecting new saw-mill of 10,000,000 feet per year capacity.

Port Vincent—Brick, Tile and Sewer-pipe Works.—S. J. Stubbs, F. B. Stubbs, W. A. Jeter, D. W. Jeter and H. N. Fagin of Macon, Ga., will incorporate company for establishment of brick, tile and sewer-pipe plant; capacity 30,000,000 brick per year.

Vidalia—Cottonseed Delinting Plant.—See item under Natchez, Miss.

MARYLAND.

Allegany County—Coal and Clay Mines.—International Land Co., recently reported as incorporated with capital stock of \$500,000, will issue \$100,000 of bonds as working capital and equipping its mines with latest improved machinery. Company has acquired large tract of land, which is underlaid with coal and fire-brick clay. Chas. N. Boulden, Geo. S. McCullough, Edward S. Hammill, John S. Carroll and Frank D. Stevens, all of Baltimore, Md., are directors.

Baltimore—Furniture Factory.—Bagby Furniture Co. has purchased site and will erect factory, as recently reported; factory includes main building, three three-story warehouses, engine-room, boiler-house, stables and dry-kilns, and will be equipped with elevators, automatic sprinklers, etc.*

Baltimore—Novelty Company.—Auter Manufacturing Co. has been incorporated, with capital of \$25,000, for developing patented novelties, by Harry S. Roop of Westminster, Md.; William W. Roop of Baltimore and others.

Baltimore—Drug Company.—Gilpin, Langdon & Co. (established) has been incorporated under New Jersey laws, with capital stock of \$250,000, by H. B. Gilpin, Chas. F. Husted and others.

Baltimore—Cigar Company.—El Arte Cigar Co. has been incorporated, with capital stock of \$50,000, by Samuel Heineman, Jesse L. Heineman, Isaac Leopold and others.

Cumberland—Electric-light Plant.—Edison Electric Illuminating Co. will install \$25,000 worth of additional machinery, which includes 325 horse-power engine direct-connected to a 200-kilowatt railway generator, 300-horse-power water-tube boiler, 350-horse-power engine direct-connected to a 240-kilowatt volt generator, etc.

Emmitsburg—Coal Mine.—A company is being formed for developing coal mine, F. A. Weily, J. Stewart Annan and G. Mead Patterson being interested.

Washington, D. C.—Jar-lid Factory.—Chartered: Perfect Jar Lid Co., with capital stock of \$100,000, by E. J. Smith, president; C. S. Fletcher, secretary and treasurer.

MISSISSIPPI.

Columbus—Lumber Company.—Bell Lumber & Manufacturing Co. has been incorporated, with capital of \$10,000, by Battle Bell, T. B. Franklin, D. S. McClanahan and others.

Ellisville—Saw-mill.—W. E. Silverthorne, T. S. Howell, J. A. Griffin and others have incorporated Anchor Saw-Mill Co. for manufacture of lumber, bricks, etc., capital stock is \$75,000.

Gloster—Electric-light Plant and Water-works.—City will construct system of water-

works and erect an electric-light plant. Address G. M. Causey, city clerk.

Greenville—Cotton Company.—H. W. Starling, E. H. Magruder, John T. Green and others have incorporated Greenville Cotton Co., with capital of \$10,000, to act as cotton factors, etc.

Hattiesburg—Water-works.—City has let contract at \$30,000 to Birmingham (Ala.) partners for construction of its proposed water-works system. Address "The Mayor."

Hattiesburg—Publishing.—Citizens' Publishing Co., with capital of \$5000, by B. C. Hemphill, A. K. McInnis, W. W. Massengale and others.

Laurel—Cotton Mill.—Laurel Cotton Mills has completed doubling its plant to 10,000 spindles and 320 looms, and will install another 320 looms, enlargements more than doubling the \$100,000 investment. It is rumored the plant will further extend to a \$1,000,000 investment during 1902.

Natchez—Woodworking Factory.—Capt. H. B. Shields of Youngstown, Ohio, is investigating with a view to establishing a stave, spoke and wood factory at Natchez.

Natchez—Cottonseed De-linting Plant.—E. H. Jackson, Natchez; E. C. Rhodas, L'Argent, La.; S. H. Lambdin, Natchez; W. A. Percy, Memphis, Tenn., and others are organizing company for establishment of cottonseed de-linting plant either at Natchez, Miss., or Vidalia, La.

Vicksburg—Water-works.—Advance Gin & Mill Co. will construct a system of water-works.

MISSOURI.

Joplin—Ice Plant.—Southwest Missouri Light Co. has awarded contract for erection of a \$100,000 ice plant.

Kansas City—Ice Factory.—W. V. McCunn, A. H. Jennings and others have organized \$15,000 stock company for establishment of ice plant.

Kansas City—Coal Mines.—Kansas Southern Coal Co. has been incorporated, with capital stock of \$100,000, by S. W. Kniffin, L. D. Kniffin, Geo. P. Cronk and others.

Kansas City—Cracker Factory.—It is reported that Loose Bros. are interested in the establishment of a \$100,000 cracker factory.

Marshall—Water-works.—City has voted issuance of \$70,000 for construction of its proposed electric-light plant and water-works. Address "The Mayor."

St. Louis—Mining.—Venture Mining Co., with capital of \$10,000, has been incorporated by John D. Davis, Henry S. Potter, B. J. Taussig and others.

St. Louis—Paint Company.—Becker-Moore Paint Co. has been incorporated, with capital of \$40,000, by William E. Becker, Edward C. Becker, Richard Moore and others.

St. Louis—Gas & Electric Fixture Manufacturing Co., with capital of \$5000, by Chas. W. Wempner, A. D. Gratiaa, Maurice M. Koenigsberg and others.

St. Louis—Filter Company.—Chartered: Jackson Filter Manufacturing Co., with capital stock of \$100,000, by Powell Jackson, E. G. Tutt and Albert Miller.

St. Louis—Millinery.—Chartered: Odeon Millinery Co., with capital stock of \$5000, by Geo. W. Neal and others.

St. Louis—Grain Company.—Western Grain Co. has been incorporated, with capital stock of \$10,000, by Ralph W. Orthwein and others.

St. Louis—Paint Company.—P. G. Hammer, F. V. Hammer and P. F. Hammer have incorporated Hammer Paint Co., with capital stock of \$500,000.

St. Louis—Manufacturing.—Hitchcock Sign & Manufacturing Co. has been incorporated, with capital stock of \$5000, by Reuben Hitchcock and others.

St. Louis—Grain Company.—Western Grain Co. has been incorporated, with capital of \$10,000, by H. H. Orthwein, H. C. Alexander and W. M. Leftwich.

St. Louis—Investment Company.—Federal Investment Co., with capital of \$10,000, has been incorporated by James O'Laughlin, George Steffel and Chas. R. Davis.

St. Louis—Mercantile.—Chartered: Blum-Lowenstein Mercantile Co., with capital stock of \$100,000, by Chas. Lowenstein and others.

NORTH CAROLINA.

Boardman—Lumber Mills.—Butters Lumber Co. will rebuild its lumber, shingle and nail mills, recently burned.

Casar—Sash, Door and Blind Factory.—R. L. Carpenter and J. M. Smith have purchased machinery of the Rudasill Machine Shops at Shelby, N. C., and will remove it to Casar, where they will operate a large sash, door and blind factory.

Creek—Broom Factory.—W. E. Davis will establish a broom factory.

Elizabeth City—Electric-power Plant.—John G. Wallace, J. A. Wallace, W. C. Forebee and C. M. Forebee have incorporated Elizabeth City Electric Railway & Power Co., with capital of \$20,000, and privilege of increasing to \$125,000.

Gold Point—Peanut Company.—Gold Point Peanut Co. has been incorporated, with capital of \$125,000, by J. E. Robeson, R. T. Taylor, W. H. Everett and others.

Graham—Cotton Mill.—Pomeroy Bros. will build a cotton mill.

Greensboro—Construction.—North Carolina Construction Co. has been incorporated, with capital of \$1000, by F. S. Williamson, J. G. Otis and F. A. Baker.

Hickory—Knitting Mill.—K. Z. Menzies, A. A. Shuford and T. J. Martin are organizing company mentioned last week as proposed to build knitting mill; capital will be \$25,000.

High Point—Land Improvement.—Kendall Improvement Co. has been incorporated, with capital stock of \$50,000, for dealing in and improving real estate, by J. Elwood Cox, J. J. Cox, W. G. Bradshaw and others.

Hope Mills—Cotton and Finishing Mills.—Hope Mills Manufacturing Co. will build another mill for spindles and looms, also a finishing mill; at present has 12,582 spindles and 751 looms.

Newton—Lumber Company.—Dellinger Bros. have organized for dealing in lumber of all kinds.

North Carolina—Timber Lands, Mills, etc.—O. D. Jackson Co. of Norfolk, Va., has closed contract with J. D. Post, George Jackson and others of Washington C. H., Ohio, for the sale of 10,327 acres of timber lands in Craven and Beaufort counties, North Carolina; also a contract with Charles E. Hyter, A. J. Fowler and others of Bradner, Ohio, for sale of 10,000 acres of timber lands in Craven and Pamlico counties, North Carolina. It is proposed by Mr. Post and associates and Mr. Hyter and associates to each organize a company for cutting the timber and manufacturing same into lumber and other products; also to clear, drain and improve the properties with a view to marketing as farms.

Plateau—Woolen Mill.—Catawba Woolen Mills, reported last week under Hickory, N. C., as incorporated, has an established plant at Plateau; office is at Hickory.

Raleigh—Flour Mill.—Farina Milling Co., reported recently as incorporated, has purchased and will operate plant of Farina Roller Mills Co.

Rutherfordton—Cotton Mill.—Levi Cotton Mill Co., reported last week to increase capital \$100,000, will install looms for its equipment of 6240 spindles.

Waynesville—Wagon Factory.—A. C. Cagle and D. M. Killian, proprietors of Richland Wagon Co., are endeavoring to organize an \$8000 stock company for enlargement of their works.

Wilson—Mercantile.—Chartered: Robert W. Fulgum Co., with capital of \$3000, by Robert W. Fulgum and others.

SOUTH CAROLINA.

Charleston—Drug Company.—Charleston Drug Manufacturing Co. has been incorporated, with capital of \$60,000, by Walter Pringle, J. A. Burgess, Lee Loeb and others.

Columbia—Insulator Factory.—Edward Renault of Waldo, Fla.; Chas. Warren Davis, John O. Wicker and Geo. Nees of Augusta, Ga., have incorporated Renault Insulator & Electrical Manufacturing Co., with capital of \$25,000, to manufacture electrical insulators from glass, porcelain, mica, clay, etc.

Georgetown—Hardware and Plumbing.—Chartered: Georgetown Hardware & Plumbing Co., with capital of \$5000, by S. S. Ingram, Chas. H. Bryan and others.

Union—Cotton Mill.—Actina Cotton Mills will increase capital from \$125,000 to \$200,000; is now building 10,000-spindle and 300-loom plant.

TENNESSEE.

Chattanooga—Singletree Factory.—Southern Singletree Co. has been incorporated, with capital of \$25,000, by P. H. De Rochemont, president; Chas. Herron, general manager, and Joe W. Clift, secretary, for the establishment of singletree factory reported during the week, under Sherman Heights, to be established.

Chattanooga—Planing Mills.—W. C. King has purchased site for erection of his proposed planing mills.

Chattanooga—Pickle Factory.—H. J. Heinz Company of Pittsburgh, Pa., will, it is reported, build large salting and pickling plant at Chattanooga.

Chattanooga—Hames Fastener.—D. E. Bull of Sequatchie Valley, Tenn., has patented an improved hame fastener and a machine to manufacture the fasteners with capacity of 4000 per day. American Manufacturing Co. will manufacture these fasteners, and if the results are as expected will install additional machinery and conduct a large hames factory.

Chattanooga—Pea-huller Factory.—Chattanooga Implement & Manufacturing Co. writes that it has purchased the exclusive right to manufacture and is manufacturing the Gardner pea-huller, formerly made by J. H. Gardner & Co. of Dalton, Ga. (not the Dixie pea-huller, as our recent report erroneously stated, this huller being made exclusively by the Sanders Manufacturing Co. of Dalton, Ga.)

Chattanooga—Knitting Mill.—Mathis & Davis Co. writes that the report as to its intention to double plant, mentioned last week, is not authorized, no improvements being contemplated.

Knoxville—Zinc Mines.—Cumberland Mining Co. has increased its capital stock from \$125,000 to \$175,000 for development of large zinc properties recently purchased.

Knoxville—Saw-mills, etc.—Little River Lumber Co. will locate saw-mills and other industries along the line of its proposed road; W. B. Townsend, general manager.

Knoxville—Coal Mines, etc.—Cumberland Coal & Coke Co., W. M. Nixon, Crossville, general manager, is opening up three new mines; company owns 200,000 acres of coal lands in Tennessee, and has recently purchased the property of the Crawford Coal & Iron Co. of 60,000 acres and 105 miles of railroad.

Knoxville—Zinc Deposits.—C. W. Steele has optioned and will develop zinc properties in Knox county.

Knoxville—Machine Shops.—Harvey Abrams will rebuild his \$3000 machine shops, recently burned.

Mascot—Zinc Mines.—H. Clay Evans of Washington, D. C., who was reported recently to locate a townsite at Mascot, where he, with others, owns 2000 acres of land, with a view to developing iron, zinc and marble, is again reported as having purchased the Mascot Flouring Mills, which will be converted into an ore crusher to prepare the ore for smelter. Among others interested with Mr. Evans are John W. Adams of Chattanooga, Tenn.; Mr. Baldwin of Cleveland, Ohio, and a Mr. Boardwin of Philadelphia, Pa.

Nashville—Flour Mill.—B. F. Poorman of West Union, Ill., states that he will not build flour mill at Nashville, as was recently reported.

Nashville—Steam-heating Company.—Nashville Steam Heating Co. has been incorporated, with capital of \$10,000, by Jos. P. Gray, J. T. Lellyet, W. A. Stewart and others.

Newport—Electric-power Plant.—Unaka Tannery will install electric-power plant for operating its tannery.

Spring City—Coal Mines.—Beatrice Coal & Mining Co. has filed a deed of trust to secure \$100,000 of bonds for development of 5000 acres of coal land and for building a spur track five miles in length.

Springfield—Water-works.—City has voted issuance of \$25,000 of bonds for water-works recently reported. Address W. W. Pepper.

TEXAS.

Alto—Land Cultivation.—Morrill Orchard Co. has been organized for cultivating 10,000 acres in Cherokee county in fruit and truck; buildings will be erected for hothouses, machinery, windmills, etc. W. W. McFarland is president; Roland Morrill, vice-president; Harry B. Fisher, secretary, and M. Baker, treasurer, both the latter of Chicago, Ill.

Beaumont—Car Works.—Efforts are being made for establishment of car works. J. H. Bright is said to be interested.

Beaumont—Ice Factory.—Will Carroll will organize a \$150,000 company for establishment of ice factory.

Beaumont—Oil Wells.—New England Beaumont Oil Co. has been incorporated, with capital stock of \$1,000,000, by M. V. Little, E. P. Crooker of Boston, Mass.; H. W. Parks of Beaumont and others.

Beaumont—Oil Wells.—Baltimore & Beaumont Oil Co. has been incorporated, with capital stock of \$600,000, by John N. Popham of Washington, D. C.; I. M. Parr, Jr., of Baltimore, Md.; R. C. Duff of Beaumont and others.

Beaumont—Asphalt Plant.—Central Asphalt & Refining Co., recently incorporated with \$2,000,000 capital, is erecting a \$250,000 plant at Port Neches to cover forty acres, for

the manufacture of asphalt and refining the by-products from crude petroleum; plant will have capacity of 7000 barrels of crude oil per day.

Beaumont—Brokerage Company.—Chartered: Kimball-McCarthy Company, with capital of \$50,000, by J. H. Kimball, W. G. Tyrrell and others.

Beaumont—Oil Wells.—Chartered: Blg Four Oil Co., with capital stock of \$250,000, by R. L. Cox, Wm. Bartlett of Beaumont and E. T. Gibbons of Des Moines, Iowa.

Beaumont—Mercantile.—Chartered: T. R. Reed Grocery Co., with capital stock of \$150,000, by T. S. Reed and others.

Brazoria County—Oil Wells.—Brazoria Oil & Realty Co. has been incorporated, with capital stock of \$1,000,000, for development of 300 acres of oil lands in Brazoria county. Dwight W. Cutter is president; Frank Spets, vice-president; John A. Higler, treasurer, and Edwina H. Rundle, secretary, all of Milwaukee, Wis.

Corpus Christi—Oil Wells.—J. O. Hardwick and Colorado Springs parties have organized Corpus Christi Oil Co., with capital stock of \$1,000,000, and will bore for oil.

Craudall—Mercantile.—Chartered: Craudall Mercantile Co., with capital of \$20,000, by J. A. Crawford and others.

Dallas—Round-bale Machinery Works.—It is reported that Lowry Round Bale Co. of New York will erect a plant for the manufacture of its machinery in Dallas; site, plant and equipment to cost about \$450,000.

Del Rio—Woolen Mill.—Keller & Van Dusen will establish a mill for making blankets, etc.

Fort Worth—Stockyards Improvements.—Fort Worth Stockyards Co. will increase capital from \$1,000,000 to \$2,000,000 to provide funds for improvements and facilities to be provided in connection with the establishment of the Swift and Armour packing-houses, previously announced. About fifty miles of trackage is planned in and about the yards and the proposed packerles.

Houston—Machine Shops.—Southern Pacific Company will expend \$65,000 enlarging its buildings and installing additional machinery in its railroad shops; E. H. Harriman, president, New York.

Houston—Oil-barrel Factory.—J. V. Saum of Des Moines, Iowa, representing himself and others, is investigating with a view to establishing a plant for manufacturing oil barrels, tanks, etc.

Houston—Irrigation Company.—Brazoria Rice & Irrigation Co. has increased capital stock from \$200,000 to \$400,000.

Houston—Oil and Gas Wells.—Legal Tender Oil & Gas Co., with capital stock of \$500,000, has been incorporated by Lewis Emery, Jr., L. E. Hamsher, Bradford, Pa.; Isaac E. Dean of Houston, T. D. Johnson of Moscow, Texas, and others.

Houston—Irrigation Plant.—Planters' Irrigation Co. has been incorporated, with capital of \$40,000, by J. E. Lancaster of Waxahachie, Texas; C. M. Lancaster and W. S. Delery of Houston.

Kemp—Drug Company.—Chartered: J. H. Barnett Drug Co., with capital of \$3500, by J. E. Moore, F. C. Wilhar and J. H. Barnett.

McKinney—Mercantile.—Chartered: Crouch-Saigling Company, with capital of \$50,000, by C. F. Saigling and others.

Mexia—Drug Company.—Mexia Drug Co. has been incorporated, with capital of \$30,000, by Jack Womack, Jesse McLendon and W. E. Doyle.

Orange—Chemical Plant.—Texas Chemical Co. will erect plant to manufacture sixty 60-degree boric acid per day, from plants by Joseph Broome, chemical engineer, of 123 Liberty street, New York city.

Paris—Light and Power Plant.—Paris Light & Power Co. has increased its capital stock from \$120,000 to \$200,000.

Paris—Telephone System.—Franchise has been granted to Fayette Telephone Co. of Lexington, Texas, for operating a telephone exchange at Paris.

Port Lavaca—Pumping Plant, etc.—Placedo Rice & Irrigation Co. has been incorporated, with capital of \$30,000, by Ross T. Clark of Port Lavaca, Jesse H. Jones of Houston and John H. Gaston of Dallas, for construction of a reservoir by damming the mouth of the Placedo or Union creek, which will create a lake 800 acres in extent and ten feet deep, on which will be located pumping plant to irrigate the 4000-acre estate controlled by Ross Clark and adjacent properties for rice culture.

Rockdale—Sewerage.—City will construct sewerage system. Address "The Mayor."

Temple—Electric-light and Power Plant.—Council has granted franchise to Mr. Strick-

land of Waxahachie for installation of an electric-light and power plant at Temple.

Trell — Publishing.—Chartered: Times-Star Printing & Publishing Co., with capital of \$10,000, by J. D. Cunningham, G. E. Higgins and J. M. Nance.

Texarkana—Lumber Company.—Chartered: Atkiatek Lumber Co., with capital stock of \$100,000, by C. M. McWilliams, J. T. Owsley and Geo. J. Armisted.

Victoria—Irrigating Canal.—Geo. T. Haskell and T. L. Ward of Cleveland, Ohio, have purchased 5000 acres of lands from F. B. Lander of Victoria, which they will plant in rice, constructing irrigating canal, etc.

Weatherford—Woolen and Press-cloth Mill.—Weatherford Board of Trade announces that a mill to manufacture woolen and camel's-hair press-cloth will be established, work to commence within thirty days on its erection.

Weatherford—Hardware Company.—Lowes-Carter Hardware Co., with capital of \$60,000, has been incorporated by W. D. Carter, R. P. Lowe and others.

VIRGINIA.

Alexandria — Fertilizer Factory.—Alexandria Fertilizer Co. has purchased site at \$5000, and will enlarge its works.

Big Stone Gap—Coke Ovens.—Big Stone Gap Iron Co. will, it is reported, erect 100 coke ovens.

Blacksburg—Coal Mines.—Mr. Jackson of Paterson, N. J.; Mr. Reynolds of Pennsylvania and others are investigating with a view to purchasing coal-mining properties near Blacksburg, which include those of Smith & Son, Brush Mountain Coal Co., John Kipp and others. If deal is consummated, developments will be conducted on an extensive scale.

Danville — Tobacco Factory.—John E. Hughes & Co. will rebuild their tobacco factory lately burned.

Danville—Cotton Mill and Water-power Developments.—It is reported that Riverside Cotton Mills will build a dam in Dan river for development of water-power for transmission and use in its present plant of 67,650 spindles and 2771 looms, and for operating a new mill to be erected. The company writes that nothing definite has been decided upon.

Danville—Tobacco and Cigar Factory.—P. B. Gravely Tobacco Co. has been incorporated, with capital stock of not less than \$50,000 nor more than \$300,000, for manufacture of tobacco, cigarettes, cigars, etc. Company will take over plant of P. B. Gravely & Co. R. A. Bendall is president; J. G. Gravely, vice-president and manager, and W. E. Hurrie, secretary and treasurer.

Newport News—Shipbuilding Plant.—Newport News Shipbuilding & Dry Dock Co. will commence work at once on about \$250,000 worth of improvements to the plant. The betterments are to include a 150-foot addition to office building, addition to machine shops, installation of new machinery in all the departments, and general improvements to facilities. C. B. Orcutt of New York is president, and W. A. Post, local superintendent.

Norfolk—Bakery.—Lawrence A. Lathrop will establish a steam bakery, and is erecting two-story brick building 50x75 feet.

Norfolk — Shipyards.—Chartered: Union Construction & Dry-Dock Co., for building and repairing vessels, etc., with D. D. Hitchings, president; J. E. Davis, vice-president; Charles T. Dean of Ironton, Ohio, secretary-treasurer. They, with W. S. Bowden and Wilson Reed of Norfolk and J. S. Ward of Baltimore, Md., are the directors; capital stock \$20,000.

Norfolk — Creosoting Plant.—Hampton Roads Creosoting Co., reported lately as incorporated, is erecting a creosoting plant, which will be equipped with three cylinders of a capacity for creosoting 90,000 feet of timber per twenty-four hours, to cost \$50,000; company will also build a wharf 70x300 feet; E. A. Buell of Norfolk, president.

Norfolk—Shipyards.—Degnon-McLean Contracting Co. of New York states that it does not contemplate erecting shipyard at Norfolk, as was recently reported.

Petersburg — Stemmeries, etc.—American Cigar Co. (New York) is preparing to erect large stemmeries in Petersburg.

Radford—Ice Plant.—Radford Ice Co. has awarded contract for erection of 10-ton ice plant.

Richmond — Abattoir.—Plans are being made for erection of an abattoir at the Union Stockyards. John H. Lyons, Jas. D. Patton and W. S. Forbes are interested.

Richmond—Viaduct.—Bill has been introduced in legislature to incorporate Citizens' Rapid Transit Co.; incorporators, S. L. Kelley, W. F. Jenkins, J. C. Hagan and others. Company will build viaduct from College street to Church Hill.

Wytheville—Iron Mines.—Virginia Iron, Coal & Coke Co. has optioned and is developing the Holston iron property near Wytheville.

WEST VIRGINIA.

Addison—Water-works.—It is reported that C. P. Doer will construct water-works system at Addison.

Buckhannon—Woolen Mill.—Buckhannon Woolen Mills states that it expects to build a modern plant to replace its \$18,000 plant recently constructed.

Charleston—Filter Company.—Chartered: Levi Filter Co., with capital of \$10,000, for manufacturing water filters, by Frank Woodward, M. Levi, C. H. Hatcher and others.

Clarksburg—Machinery Works.—Star Rig, Reel & Supply Co. has been incorporated for manufacturing boilers, derricks and other oil-well supplies, by Fred G. Viger, Allen Engdahl, Frank Jurt and others; capital is \$100,000.

Fairmont—Laundry.—Troy Laundry will erect a two-story building to cost \$10,000.

Fairmont—Real Estate.—Fairmont Real Estate Co., with capital of \$50,000, has been incorporated by W. C. Jamison, C. W. Arnett, W. F. Boyers and others.

Grafton—Electric-light and Power Plant.—Grafton Gas, Electric & Power Co. will improve its plant; C. C. Newton, superintendent.

Meadowbrook — Powder Mill.—Henry Schmidtbach of Wheeling and Massachusetts parties have purchased sixteen acres of land near Meadowbrook, and will erect large powder mill, chief product of which will be heavy rock powder.

Mt. Hope—Publishing.—Mt. Hope Publishing Co. has been incorporated, with capital of \$1000, by M. F. Adkins and others.

Rowlesburg—Cement Mill.—John T. McGraw of Grafton, W. Va., has purchased plant of Buckhorn Portland Cement Co. for \$7,550, and will probably complete the mills, which are at present unfinished.

Welch—Coal Mines.—Climax Coal Co. has organized for development of coal properties near Welch, which it has recently acquired. E. Goodman is president; J. C. Kinnier, vice-president; J. Singleton Diggs, secretary and treasurer, all of Lynchburg, Va.

INDIAN TERRITORY.

Ardmore—Brick Plant.—Nashville (Tenn.) parties are reported to establish a plant at Ardmore with daily capacity for 40,000 bricks.

Indian Territory—Oil Company.—John I. Billings, Tracy S. Buckingham, Evan J. Dudley and others, all of Jersey City, have incorporated the Indian Territory Illuminating Oil Co., with capital stock of \$3,000,000, to purchase, own and control the rights, real estate, personal property, docks, etc., of the Phoenix Oil Co. and the Osage Oil Co., now operating in the Osage Indian reservation.

Muscoke — Land Development.—Creek Land & Development Co. has been incorporated, with capital of \$25,000, by Anthony Crafton, A. V. Vining, L. E. Smoth, Elmer E. McKibbin and others.

OKLAHOMA TERRITORY.

Cordell—Cotton Gin and Grist Mill.—Cordell Gin & Milling Co. has been incorporated, with capital stock of \$25,000, by W. H. Morrison, president; J. C. Morrison, vice-president; G. W. Reece, secretary.

Guthrie—Townspeople Company.—Chartered: Choctaw & Oklahoma Townsite Co., with capital stock of \$125,000, to lay out townsites on Choctaw extension from Hartsville to Guthrie, by C. M. Barnes, H. H. Hagan, J. E. Ball, J. W. McNeal and others.

Lawton—Oil and Gas Wells.—Volcano Oil & Gas Co. has been incorporated, with capital stock of \$10,000, by Walter Stephens, O. P. M. Butler, Frank McMaster and others.

Oklahoma City—Flour Mill.—Oklahoma City Mill has installed new machinery, increasing capacity fifty barrels per day.

Oklahoma City—Development Company.—Southwestern Development Co. has been incorporated, with capital stock of \$600,000, by Albert E. Yerex, James F. Christian, Larkin A. Rockwell and others, all of Chicago, Ill.

Pond Creek—Electric-light Plant.—John A. Lewis has received franchise for erection of an electric plant of thirty arc and 1200 incandescent lights.

Shawnee—Sewerage System.—Sewerage system will be constructed. Address "The Mayor."

Shawnee—Lumber Company.—Chartered: House Lumber Co., with capital of \$10,000, by S. J. R. House, William H. Dill and M. E. Dill.

Shawnee—Mining.—Shawnee Mining Co.,

with capital stock of \$100,000, has been incorporated by J. B. Ellis, S. J. Hardin, L. P. Dean and others.

Weatherford — Ice Plant.—Chartered: Weatherford Ice Co., with capital of \$25,000, by O. S. Trulock of El Reno, J. T. Bradford of Weatherford, W. N. Trulock of Pine Bluff, Ark., and others.

BURNED.

Bayou Goula, La.—Alonzo Landry's sugarhouse.

Bedford City, Va.—Dixie Tobacco Co.'s factory.

Bentoak, Miss.—Willis Banks' cotton gin.

Paris, Texas.—W. J. Hayden's cotton gin; loss \$3000.

Petersburg, Va.—Chas. D. Carr's cotton gin and corn mill; loss \$2000.

Poplar Bluff, Mo.—H. D. Williams Cooperage Co.'s plant; estimated loss \$125,000.

Sistersville, W. Va.—Carter Oil Co.'s power-house; loss \$6000.

Tappahannock, Va.—Mrs. McDaniel's packing-house.

Tarboro, N. C.—Riverview Knitting Mills; loss \$50,000.

Wootan Wells, Texas.—J. R. Bond's cotton gin; loss \$3000.

BUILDING NOTES

Alexandria, Va.—Office Building.—Mercantile Railway Building and Loan Association has awarded contract to Joseph F. Rodgers for remodeling its property into an office building.

Annapolis, Md.—E. M. Noel and D. W. Thomas of Baltimore have received contract at \$2,448,000 for construction of new cadets' quarters at Naval Academy.

Atlanta, Ga.—Apartment-house.—Mrs. Robert Ridley will build an eight-story apartment-house.

Atlanta, Ga.—Theaters.—R. Coley Anderson of Atlanta and Jake Wells of Richmond, Va., have decided to erect the two theaters in Atlanta, as recently reported.

Augusta, Ark.—Courthouse.—Plans of C. L. Thompson of Little Rock have been accepted for the proposed \$30,000 repairs to the Augusta courthouse and jail, and for erection of the proposed \$10,000 courthouse at Cotton Plant. E. H. Connor, commissioner, will advertise for bids for the work at once.

Austin, Texas—School.—Contract for erection of new school building of State Deaf and Dumb Institute has been awarded to Fischer & Ramsey at \$35,270, and heating contract to H. A. Kennison at \$2900.

Baltimore, Md.—Kitchen.—Sheppard and Enoch Pratt Asylum will erect a large brick and stone kitchen building at a cost of \$100,000.

Bay St. Louis, Miss.—City Hall.—City will issue \$15,000 of bonds for erection of city hall and for other municipal improvements. Address "The Mayor."

Beaumont, Texas—Building.—B. Greenburg is having plans made by D. P. Kaufman & Son for erection of one-story brick building 30x70 feet.

Beaumont, Texas—Hotel.—Threadneedle Hotel Co. has been incorporated, with capital of \$60,000, by Mark Weiss, S. H. Van Wormer, H. B. Full and others for erection of six-story hotel 60x150 feet.

Birmingham, Ala.—Hotel.—W. H. Woodward has purchased site at \$100,000 and will, it is reported, erect a 12-story hotel on same.

Clarksburg, W. Va.—Mercantile Building.—Clarksburg Hardware Co. has been incorporated, with capital stock of \$100,000, by J. A. Crislip, James Fullerton and others, and will erect five-story building 100x100 feet to cost \$30,000.

Cotton Plant, Ark.—Courthouse.—See item under Augusta, Ark.

Denison, Texas—Hotel.—Denison Hotel Co. will shortly receive plans and specifications for its proposed new hotel, and will want bids on erection of same. Company will also erect one-story building in addition to its hotel, 50x60 feet.

Gatesville, Texas—Hospital.—Contractor E. T. Lewis of Belton, Texas, has received contract for erection of hospital at Gatesville Reformatory to cost \$2500.

Gonzales, Texas—Hall.—J. P. Randle, C. T. Rather, J. H. Booth, J. R. Kennard and R. S. Dilworth have been appointed a committee to correspond with architects and builders in regard to the establishment of the \$20,000 lycéum hall lately reported.

Henderson, N. C.—Bank Building.—Citizens' Bank will remodel its building; Wm. A. Hunt, cashier.*

Houston, Texas—Schools.—James Charlton, president school board, will open bids December 21 for whole or any part of work required in erection of school, and for additions to Cascara School. Plans and specifications can be seen at office of Cooke & Co., Klam Building. Certified check for 10 per cent. of amount of each bid required. Usual rights reserved.

Jennings, La.—Town Hall.—City will vote on bonds for erection of town hall. Address "The Mayor."

Johnson City, Tenn.—Business Block.—M. I. Gump will erect a two-story brick business block 60x200 feet.

Milford, Texas—College.—Texas Presbyterian College for Girls will erect building to cost \$20,000; W. T. M. Dickson, chairman committee.

Mineral Wells, Texas—Hotel.—C. G. Mooring has let contract to J. W. Crenshaw for erection of two-story brick 50x125-foot addition to Piedmont Hotel.

Montgomery, Ala.—School.—City will rebuild Herron Street School, recently burned. Address "The Mayor."

New Orleans, La.—Wharf.—Hugh McCloskey, president commissioners of port, New Orleans, La., will open bids January 7 for construction of wharf on river front. Bidders to furnish proposals for labor and material necessary and complete construction in accordance with plans and specifications. Check for \$1000 must accompany each bid. Specifications, blank forms, etc., can be obtained at above office or of Coleman & Maloche, 319 Carondelet street. Usual rights reserved.

New Orleans, La.—Warehouse.—Charles Sykes, president of the Sykes Banking Co. of Nashville, Tenn., and general agent of the Security Warehousing Co. of New York, is reported as planning the erection of a large warehouse in New Orleans for his company. Address at Nashville.

Norfolk, Va.—Business Building.—Board of Trade has purchased site at \$24,000, and expects to issue \$75,000 of bonds for erection of a six-story modern business building; E. E. Daner, secretary.

Petersburg, Va.—Hotel.—It is reported that the Atlantic Coast Line will build large hotel in Petersburg. Alex. Hamilton is second vice-president.

Richmond, Va.—Warehouse.—E. A. Saunders' Sons Grocery Co. will erect large warehouse.

Savannah, Ga.—Bank and Office Building.—National Bank of Savannah and Oglethorpe Savings & Trust Co. will erect a 10-story bank and office building.

Selma, Ala.—Depot.—Louisville & Nashville Railroad Co. will, it is said, build two-story brick depot 125x30 feet to cost \$50,000 in Selma; Geo. E. Evans, Louisville, Ky., general manager.

Washington, D. C.—Church.—Grace Church has accepted plans of Paul J. Pelz of Washington and A. A. Ritter of Lebanon, Pa., for improvements to its church, recently reported to be made at a cost of \$35,000.

Waynesville, N. C.—Business Block.—Col. C. A. Alford, R. E. Osborne, S. C. Welch and N. P. Walker will erect large business block.

RAILROAD CONSTRUCTION.

Railways.

Albany, Ga.—It is announced that the Georgia Northern Railroad Co. has graded its extension from Carlisle to Albany, a distance of eighteen miles, and that contracts are to be let immediately. C. W. Pidcock at Moultrie, Ga., is vice-president of the company.

Ava, Mo.—O. G. McLoon, engineer of the Ava Northern Railroad, writes the Manufacturers' Record that he has completed surveys from Cedar Gap to Ava, a distance of fourteen miles. The promoting company is composed of business men of Ava, and it is believed that the line will be built during the next year. J. H. Murray is one of the principal promoters.

Baltimore, Md.—It is announced that an independent company will be formed to build an electric railroad between Baltimore and Frederick along the Liberty road and connecting thoroughfares. James E. Ingram and Frank H. Calloway are interested in a company which is to be formed with \$1,000,000 capital stock.

Baltimore, Md.—A meeting of the Baltimore, Cincinnati & Western Railroad Co. will be held December 21 at Baltimore to authorize an issue of bonds. A company was chartered several years ago, and it was reported that the eastern terminus of the road would be located at Curtis Bay. Messrs. Strick-

Gans & Haman of Baltimore are counsel for the company.

Benton, Ark.—F. A. Molitor, chief engineer of the Hot Springs Railroad Co., which is a division of the Choctaw, Oklahoma & Gulf system, writes the Manufacturers' Record that contracts have been let for the extension from Benton to Butterfield, and that it will probably be completed in January.

Bluff City, Tenn.—W. B. Townsend, general manager of the Little River Lumber Co., writes the Manufacturers' Record that the length of the railroad which this company proposes building along the Little river will be eighteen miles. It is expected to let contracts for construction within the next two or three weeks, with the view to completing the road by July 1. W. M. McCormick, 218 Girard Building, Philadelphia, is president, and H. W. Lockhart at Bluff City is chief engineer. Mr. Townsend may be addressed at Knoxville, Tenn.

Cleburne, Texas.—It is reported that G. A. Human of Cleburne is interested in a proposed railroad between Cleburne and Fort Worth, and that right of way is now being obtained.

Columbus, Ga.—It is stated that the Seaboard Air Line Railway Co., which has purchased the steam dummy line in operation in the city and suburbs, will rebuild the road, which is about five and one-half miles in length. W. W. Gwathmey at Portsmouth, Va., is chief engineer.

Denison, Texas.—R. C. Foster, vice-president of the Denison, Bonham & New Orleans Railroad Co., writes the Manufacturers' Record that no definite arrangements have been decided upon for extending this line beyond Bonham, although such a step has been contemplated.

Dodge, Texas.—The Trinity Valley Southern Railway Co. has been organized to build between Dodge and Cold Springs, an estimated distance of twenty miles. At Cold Springs connection will be made with the International & Great Northern system.

Elizabeth City, N. C.—A charter has been granted the Elizabeth City Electric Railroad Co., in which it is understood local business men are interested, to build a trolley system from Elizabeth City to points in adjacent counties. J. A. Wallace of Berkley, Va., and C. M. Ferree of Elizabeth City are promoting the project.

Fayetteville, Ark.—A mortgage to secure bonds to the extent of \$2,000,000 has been given by the Ozark & Cherokee Central Railroad to the Illinois Trust Co. of Chicago to finance the completion of this line from Fayetteville to Muskogee and Guthrie, Okla. H. W. Seaman is president, and may be addressed at Clinton, Iowa. The road is now in operation between Fayetteville and Lincoln, a distance of twenty miles, and a portion of the contracts have been let to Muskogee, a distance of eighty miles from Lincoln. E. G. Hughes at Fayetteville is general manager.

Fayetteville, N. C.—The plan to complete a railroad between Southern Pines and Fayetteville has been revived, and it is stated that several members of the promoting company have been conferring with Fayetteville business men with a view to carrying out the project. The route has already been surveyed. F. R. Rose at Fayetteville is reported as interested.

Fort Worth, Texas.—It is announced that the International & Great Northern Railroad Co. has given a contract to construct the branch from Waco to Fort Worth as soon as possible. The route is by way of Italy, Texas, and the estimated length is 100 miles. Leroy Trice at Palestine, Texas, is general manager of the company.

Fort Worth, Texas.—The Red River, Texas & Southern Railway Co. has amended its charter, allowing it to construct a line from a point on the Red river near Willis, Texas, to a connection with the Fort Worth & Rio Grande Railroad near Fort Worth, also to Dallas, Texas. Samuel Lazarus of Sherman, Texas, and John Summerfield of Dallas are among the directors of the company.

Huntsville, Ala.—A report is current that a plan to build a railroad from Huntsville to Leitchfield, Ky., has reached a point where New York parties have become interested, and that a company is now being formed to carry out the project.

Jacksonville, Fla.—H. F. Hammon of West Palm Beach, president of the Jacksonville & Lake Worth Railroad Co., informs the Manufacturers' Record that application has been made for a charter, but as yet no surveys have been made. It is intended to build from Jacksonville to Lake Worth and West Palm Beach, thence to the head of navigation on the St. John's river. The line will be about 300 miles long as proposed.

Lexington, Tenn.—M. N. Ensley of Lexing-

ton is reported as interested in a plan to build an electric railroad between Lexington and Saltillo, an estimated distance of twenty-two miles.

Marion, Va.—It is announced that contractors have been looking over the Marion & Rye Valley Railroad with a view to making proposals to extend it, as originally intended, to Rye Valley. The extension would be about three miles in length. J. S. Apperson is one of the promoters of the enterprise.

Marion, Va.—It is reported that a syndicate from Williamsport, Pa., is considering the idea of constructing a railroad through a portion of Grayson county to connect with the Norfolk & Western system at Marion.

Memphis, Tenn.—It is reported that another company may be formed to build a railroad from Memphis to a connection with some seaport on the Gulf of Mexico, and that a charter may be secured in the near future.

New Orleans, La.—Gustav Lehmann, Jr., secretary of the New Orleans & Mississippi Midland Railroad Co., informs the Manufacturers' Record that arrangements are being made to negotiate bonds in New York with a view to constructing the road in the near future. Geo. L. Davis is now making surveys for the northern section of the line. It is to terminate at Pontotoc, Miss.

Newport, Tenn.—J. J. Holloway of Wheeling, W. Va., president of the Tennessee & North Carolina Railroad Co., informs the Manufacturers' Record that the present extension will terminate at Big Creek, N. C., a distance of eighteen miles from Newport, and will be in operation in January.

New Roads, La.—It is announced that the extension of the Texas & Pacific Railroad from New Roads to the Red river will probably be completed about January 1. The extension will be sixty-two miles in length. L. S. Thorne at Dallas, Texas, is vice-president of the company.

Oklahoma City, Okla.—It is reported that arrangements have been made to build a trolley line from Oklahoma City to El Reno, a distance of twenty-seven miles, and that a company has been formed with \$200,000 capital stock, which includes Geo. W. Baumhoff of St. Louis and Henry C. Garner of Kansas City, Mo.

Paragould, Ark.—The Paragould Southeastern Railroad Co. has secured authority to construct an extension from Hornersville, Mo., the present terminus of this line, to Blytheville, where it will form a connection with another system. The estimated length of the extension is fifteen miles. W. E. Hasty of Paragould is president of the company.

Paris, Texas.—A. E. Yerex, vice-president of the Oklahoma, Texas & Gulf Railroad Co., which is promoting the line from Paris to Kingfisher, Okla., informs the Manufacturers' Record that the estimated length of the line, including branches, is 420 miles. Surveys have been made between Oklahoma City and Conigee, and the engineers expect to complete their work within the next sixty days. Mr. Yerex states that the necessary financial arrangements have been made for immediate construction. He may be addressed at Oklahoma City, Okla.

Parkersburg, W. Va.—The Zanesville, Marietta & Parkersburg Railroad Co. has been organized to assume control of the Little Kanawha Railroad and to build from Parkersburg to Zanesville, Ohio, by way of Marietta. The project includes a bridge across the Ohio river, and it is stated that the line will be operated in close relation with the Wabash Railroad. Surveys are being made in the interest of the company for an eastern extension of the Little Kanawha Railroad from Palestine, the present terminus, to Burnsville, where a connection may be made with a proposed extension of the West Virginia Central & Pittsburgh system. J. T. Blair is president of the Zanesville, Marietta & Parkersburg, and E. D. Fulton of Uniontown, Pa., secretary.

Pennsboro, W. Va.—M. K. Duty, president of the Pennsboro & Harrisville Railroad, confirms the report for the Manufacturers' Record that about five miles of extension will be built to the town of Pullman. Surveys have been made with a view to letting contracts in the spring.

Petros, Tenn.—W. E. Havron of Tullahoma, Tenn., informs the Manufacturers' Record that he has completed surveys for a road which may be completed by the State authorities from coal mines at Petros to Oliver Springs, on the Southern Railway, an estimated distance of nine miles.

Radford, Va.—It is stated that Geo. W. Miles, president of the Radford Southern Railroad, has become interested in a plan to extend the Marion & Rye Valley Railroad in Smyth county, and that the necessary

funds have been secured to carry out the enterprise.

St. Louis, Mo.—Messrs. Carter & Sager, who are interested in the Midland Construction Co., recently organized at St. Louis, state that the company will take up railroad construction projects, and has been organized to bid upon certain work. The offices of the firm are in the Equitable Building, St. Louis.

Tallahassee, Fla.—It is reported that the Tallahassee Southeastern Railroad has been sold to the Florida Grand Trunk Railroad Co., which proposes completing a system from a point on the line between Alabama and Florida to a terminus on the Atlantic coast. Among those interested in the Grand Trunk Company are J. B. Tyron and R. Combes. The company has secured a charter in the State of Florida with \$500,000 capital stock. R. L. Bennett at Tallahassee is general manager of the Tallahassee South-

Tallulah, Ga.—A. R. Gilchrist, chief engineer of the Tallulah Falls Railroad Co., confirms the report that the company proposes building an extension from Tallulah Falls to Franklin, N. C., a distance of forty miles. Surveys have been completed, and it is expected to let contracts within the next few months. The company will require rails.

Temple, Texas.—J. M. Carter of Dallas, the promoter of the electric railroad between Temple and Belton, has secured franchise from the city authorities for the railroad, and it is understood that work is to begin immediately. Right of way has been secured. The distance is eight miles.

Thurmond, W. Va.—It is stated that the Chesapeake & Ohio Railway Co. is considering the building of a number of sidings, also making other improvements in the vicinity of Thurmond at an estimated expense of \$80,000. H. Pierce at Huntington, W. Va., is engineer.

Washington, D. C.—It is announced that James B. Colegrave is president of the Washington, Westminster & Gettysburg Railroad Co., which has recently given a mortgage to secure an issue of \$1,850,000 in bonds to build the proposed line between Washington and Gettysburg by way of Rockville and Westminster. The mortgage was given to the Union Trust Co. of Philadelphia. The railroad company has secured right of way through Westminster.

Wheeling, W. Va.—Harry A. Garfield of Cleveland, Ohio, is reported as interested in the construction of railroad from Wheeling to a point on Lake Erie, to terminate near Fairport.

Wichita Falls, Texas.—It is stated that the Wichita Valley Railroad Co. has decided to build an extension from Holliday to Geraldine, in Archer county, a distance of seven miles. Morgan Jones at Wichita Falls is president of the company.

STREET RAILWAYS.

Louisville, Ky.—The city authorities are considering an ordinance for granting a franchise to construct an electric railroad along a number of additional streets within the city limits.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Agricultural Machinery.—See "Engine." Bank Fixtures.—Citizens' Bank, W. A. Hunt, cashier, Henderson, N. C., is in the market for bank fixtures.

Barrels.—Courtney De Kalb, San Fernando, Durango, Mexico, wants to contract for metal casks or drums, eleven inches diameter by seventeen long inside, for shipping granulated matte; corrugated cylindrical sheet-iron cans, knocked down, such as used for gunpowder shipments, would answer purpose; also wants to obtain crimping machines for setting up such cans.

Boiler and Engine.—See "Shafting, Pulleys, etc."

Boiler.—Lewisburg Planing Mill, Box 46,

Lewisburg, W. Va., wants to buy a second-hand 20 or 25-horse-power horizontal boiler.

Boilers.—H. B. Walker, secretary public works, Kansas City, Mo., will open bids December 20 for three water-tube or internally-fired boilers, 150 pounds steam pressure, one of 200 horse-power and two of 300 horse-power. Specifications on application to "Superintendent Water Department."

Boring Mill.—O. R. Whitney, 29-41 Cortlandt street, New York city, wants boring mill that will turn about seventy-two inches between uprights. Detailed information wanted, with spot cash prices.

Brick Machinery.—See "Dry-kiln."

Bridge.—H. L. Wheeler, special commissioner, Beattyville, Ky., will open bids January 6 for erection of iron bridge of four spans, ninety-five feet each, and approaches.

Broom Machinery.—W. E. Davis, Creek, N. C., wants to correspond with manufacturers of broom machinery.

Building Finishing.—T. D. Kemp, superintendent construction, Selma, Ala., wants to let contract for metal ceiling, heating and decorating for church.

Building Materials.—Citizens' Bank, W. A. Hunt, cashier, Henderson, N. C., is in the market for materials for remodeling building.

Casks.—See "Barrels."

Cotton-rope Machinery.—Davis & S. B. Kinard, Towaliga, Ga., want to buy machinery for rope-making.

Dredging.—Cassius E. Gillette, captain, engineers, will open bids January 16 for dredging in harbor of Savannah, Ga. Information on application.

Dredging Machinery.—See "Engines."

Dry-kilns.—Crowley (La.) Brick Co., Limited, is in the market for a brick driller.

Electric-light Plant.—See "Engine."

Electric-light Plant.—See "Water-works."

Electric-light Plant.—Searcy, Ark., John V. Roberts, mayor, will purchase machinery for water-works and electric-light plant.

Elevators.—See "Shafting, Pulleys, etc."

Engine.—Florida Paint Co., Jacksonville, Fla., wants to buy a 7½ and 10-horse-power gasoline engine.

Engine.—H. C. Chapman, 46 Walton street, Atlanta, Ga., is in the market for a second-hand engine, slide-valve, twenty-five or thirty horse-power; wants prices on both new and second-hand.

Engine.—Bedford City, Va., desires bids on a compound Corliss engine of 125 to 150 horse-power for its electric-light plant, to be set up and connected. Address J. A. Clark or W. A. Falconer.

Engine.—Monroe Johns, Farmville, Va., wants second-hand six-horse-power engine for wheat-threshing purposes.

Engines.—O. R. Whitney, 39-41 Cortlandt street, New York, N. Y., wants a pair of dredge engines, about 14x18 inches, 16x16 inches or 16x18 inches, with Lidgewood style drums not less than twenty-four inches. Detailed information is desired.

Excavating Machine.—See "Steam Shovel."

Heating.—See "Building Finishing."

Hoisting Equipment.—See "Mining Equipment."

Ironworking Machinery.—See "Boring Mill."

Iron Works.—See "Well-drilling Equipment."

Knitting Machinery.—Davis & S. B. Kinard, Towaliga, Ga., want to buy hosiery machinery.

Knitting Machinery.—W. J. Oswald, Box 243, Birmingham, Ala., wants prices on knitting machines for hosiery, underwear, etc., and general information.

Knitting Machinery.—Benjamin Russell, Alexander City, Ala., wants information on operation of knitting mill for ladies' underwear and prices on machinery.

Machine Tools.—W. H. Smith, Goldsboro, N. C., wants to buy second-hand shear and punch.

Metal Ceiling.—See "Building Finishing."

Metal-working Machinery.—See "Barrels."

Mining Equipment.—Climax Coal Co., J. Singleton Diggs, secretary, Lynchburg, Va., will need cars and material for mine track.

Mining Equipment.—W. U. Greene, general manager Center Gold & Copper Mining Co., Center, N. C., is in need of a steam hoist, capacity 1500 pounds, 450 feet deep, to hoist ore from mine; second-hand or new.

Mining Machinery.—Clarence E. Martin, Martinsburg, W. Va., wants addresses of dealers in slate-mining machinery.

Quarrying Machinery.—See "Mining Machinery."

Railway Equipment.—Tallulah Falls Rail-

way Co., W. S. Erwin, general manager, Tullulah, Ga., will soon be in the market for 50-pound relaying rails.

Railway Equipment.—C. W. Carson, Manila, P. I., wants sufficient rail to lay twenty miles of light narrow-gauge tramway; also fifty sets of wheels for use on same; second-hand outfit preferred.

Saw-mill.—L. W. Powers, 167 Water street, Norfolk, Va., wants to purchase machine for resawing slabs, either band or circular.

Saw-mills.—See "Woodworking Machinery."

Shafting, Pulleys, etc.—Bagby Furniture Co., Baltimore, Md., will need elevators, shafting, pulleys, boiler and engine.

Steam Shovel.—Grant & Williams, Park Row Building, New York, want traction steam shovel with one-yard dipper.

Vehicle Materials.—Miles & Covey Buggy Co., Washington, N. C., wants to buy materials for making buggies, and desires to correspond with manufacturers.

Water-works.—See "Electric-light Plant."

Water-works.—David Price, quartermaster, will open bids (in triplicate) January 15 for constructing water and sewerage system at Sullivan's Island, S. C. United States reserves usual rights. Information on application.

Water-works.—G. M. Causey, city clerk, Gloster, Miss., will open bids January 7 for construction of and furnishing materials for system of water-works and electric-light plant, according to plans and specifications on file in mayor's office. Bids must be accompanied with solvent bond to amount of \$15,000. Usual rights reserved.

Water-works Supplies.—Bids will be opened December 18 for furnishing water-works supplies to city of Baltimore, Md., during year ending December 31, 1902. For detailed schedules, etc., address Alfred M. Quirk, water engineer.

Well-boring Outfit.—C. J. Cunyus, San Antonio, Texas, wants to contract for boring well to obtain water for rice near Houston.

Well-drilling Equipment.—J. H. Henley & Co., Mobile, Ala., want prices on well-drilling outfits.

Well-drilling Equipment.—Ira S. Drake, Steele, Ala., wants well-drilling equipment, including drills, rope, etc.; also full set of irons for a walking-beam machine, including shaft and fittings for belt-wheel fittings for walking beam, jars and drills.

Woodworking Machinery.—See "Boring Mill."

Woodworking Machinery.—A. G. Culpeper, Magnolia, Va., wants a pony planer.

Woodworking Machinery.—W. A. Settle & Son, State agents, Clarksville, Tenn., are in the market for hoop machinery.

Woodworking Machinery.—C. D. Parr, Leesville, S. C., wants prices on second-hand machinery for making coffins.

Woodworking Machinery.—C. E. Kanoy, Goldsboro, N. C., wants to buy second-hand planer and matcher of medium size.

Woodworking Machinery.—Charles E. Hyter, Bradner, Ohio, will be in the market for saw-mills and woodworking machinery.

Woodworking Machinery.—J. D. Post of Washington C. H., Ohio, will be in the market for saw-mills and woodworking machinery.

Woodworking Machinery.—J. B. Harnsberger, Grottoes, Va., wants to correspond with manufacturers of machinery for making locust "ship-pins."

Woodworking Machinery.—Monroe Johns, Farmville, Va., wants planer and matcher combined to dress and match lumber 4x16 and lower, also shingle machine, all second-hand.

Woolen-mill Machinery.—J. H. Alexander, Seimer, Tenn., wants addresses of makers of wool roll-carding machinery.

TRADE NOTES.

Important Contract.—The American Steam Gauge & Valve Manufacturing Co., Boston, has furnished the equipment for torpedo-boat destroyer No. 34, the *Tingey*, built by the Columbian Iron Works & Dry-Dock Co., Baltimore.

A Steady Customer.—The Burt Manufacturing Co. of Akron, Ohio, manufacturer of the Cross Oil Filter and the Burt Exhaust Head, has recently received its twenty-first order from the American Steel Wire Co. of Cleveland, Ohio.

Orders from Missouri.—The Springfield Brewing Co. of Springfield, Mo., has decided to increase its ice-making plant, and has given an order for the machine to the Frick Company of Waynesboro, Pa. This indicates

the wide area of trade territory which has been secured by the Frick Company.

Coking Coal.—A tract of 10,000 acres of coking coal land in Southern Illinois is offered for sale in the advertising columns. It is well located for transportation of the product to market. Inquirers may address Box 175, Harrisburg, Ill.

Opportunity for Investment.—In another column will be found reference to the sale of 2000 acres of coal and timber land in Cumberland county, Tennessee. Mr. A. H. Gilham, Harriman, Tenn., will be pleased to give prospective purchasers any information.

Atlas Tube Cleaners.—The Atlas Pipe Wrench Co., 121 Liberty street, New York, manufacturer of the Atlas Pipe Wrench, begs to announce to the engineering profession that it is now ready to deliver Atlas Tube Cleaners of the four-inch size—for water-tube boilers with four-inch tubes.

Office in New York.—The Males Company of Cincinnati, Ohio, announces that it has opened a New York office at 256-257 Broadway, Room 1208, where a representative of the company will be pleased to give information relative to rails and rolling stock which this company carries in such extensive variety.

An Order from the South.—The York Manufacturing Co. of York, Pa., has recently secured an order for a 10-ton can ice plant from the Radford Ice Co. of Radford, Va. The order was obtained entirely upon the merits of the apparatus manufactured by this company, which has a high reputation in the Southern States.

From Over the Border.—A recent order secured by F. M. Hicks of the Hicks Locomotive and Car Works of Chicago is for two modern coaches for the Republic & Grand Forks Railroad Co. of British Columbia. The company has also given an order to Mr. Hicks for an eight-wheel passenger engine, to be equipped with the latest features in locomotive construction.

Ice Machinery at a Low Price.—An unusual opportunity to secure ice and refrigeration machinery is offered in the advertising columns by Mr. Howard Rieman, who has for sale a Frick ice machine of ten tons manufacturing capacity and twenty-five tons refrigeration capacity. It will be sold at a very low figure. Mr. Rieman may be addressed at 317 West German street, Baltimore.

In New Quarters.—The Muralo Company announces that the sales of its noted Calimco have increased to such an extent that it has been compelled to secure more storage facilities, and has changed its offices in Chicago to No. 12 North Clark street, where it will be pleased to receive inquiries and orders.

As an indication of the popularity of Calimco, it may be stated that the sales have more than doubled within the last year.

Important to Plumbers.—The organization of the Lake Erie Specialty Manufacturing Co. at Geneva, Ohio, is of much interest to plumbers and builders generally, as this concern will offer the trade a wide variety of high-grade brass goods, including the celebrated Fuller appliances, and compression work of all kinds. The company is prepared to quote special prices, and will be glad to correspond with the trade. T. H. Russell is president.

Quick Work.—Although the paint department connected with the Colonial Paint & Varnish Co. of Cleveland, Ohio, was totally destroyed by fire on December 4, the work of reconstruction has already begun, and the site of the burned building will be occupied by a new plant, which will comprise three stories and a basement. It will have adequate facilities for handling the extensive orders secured by this company, and is expected to be in readiness by February 1.

Ready for Business.—The Wisconsin Machinery & Manufacturing Co. of Milwaukee has recently been incorporated under the State laws, with \$25,000 capital stock. It has purchased the assets of the Wisconsin Machinery Co., also the business formerly conducted by Louis E. Vogel. It will maintain the Water street salesroom, and has added a machine shop for general repair work. The officers are Wm. H. Vogel, president; J. W. Otto, vice-president, and Louis E. Vogel, secretary and treasurer.

Important to Manufacturers.—In the advertising columns will be found details of the sale of the Gwinnett Cotton Mills, located in Gwinnett county, Georgia. This plant includes houses for operatives, a

warehouse, while the mill itself is equipped with the latest Hetherington mill spinning machinery. The plant has been completed but five months, and was constructed at a cost of \$105,000. It is excellently located on the Seaboard Air Line and the Southern Railway systems. The property will be sold at auction on January 18 at Lawrenceville, Ga. W. L. Peel, receiver, at Atlanta, Ga., will give further details.

A Remarkable Invention.—The value of the steam towing machine has been evinced in a number of ways. A striking illustration has been given in the work of the tug Samson, which has been towing barges used in building a jetty at Gray's Harbor, on the Pacific coast. The steamer has been obliged to cross the Columbia river bar, also the Gray's Harbor bar, in the towing work, which was attended with great difficulty. By the use of the steam towing machine, however, it has been entirely successful, the apparatus relieving the great strain caused by the rough water. This machine is manufactured by the American Ship Windlass Co. of Providence, R. I.

An Important Decision.—According to an announcement made public by the J. R. Alsing Co. of Brooklyn, N. Y., it has recently secured a favorable decision in a suit for alleged infringement of its patent No. 496,677. The decision grants injunction against further infringement; also against the use of the words "Alsing" and "Abbe" in connection with its grinding and pulverizing mills and machinery. The company further announces that all who continue to infringe upon this patent by using or selling mills of the character covered will be vigorously prosecuted. The suit was brought against Max F. Abbe of the Abbe Engineering Co. of New York.

Orders from All Around.—A Western company which has been remarkably successful in its sales of flour and corn mill machinery is the Nordyke-Marmon Company of Indianapolis, Ind. It has entered the foreign as well as domestic territory, and has secured some very important orders from Mexico. Its American customers include Wisconsin, Virginia, New York, Washington, Oregon, North Dakota, California, Missouri, Ohio and Tennessee. The year 1902 marks the beginning of the fifty-first year in business of this company, and though it is over a half-century old, it has become more vigorous with old age. Probably this is due to its rigid requirements in regard to apparatus, and it can be said that it manufactures nothing except of the best grade. As a result it is assured of its patronage, and perhaps the best proof of the merits of its machinery lies in the large number of orders which it secures at home. Some of its largest customers are located in Indianapolis.

Favorite with the Trade.—Perhaps the best reason why the compounds placed on the market by Messrs. George Callahan & Co. are so popular with the many patrons of this concern is the fact that their merits are recognized at once. For instance, the Silicate of Iron Paint, which comes ready mixed and is especially suitable for painting galvanized-iron work, buildings, rolling stock, etc., has a very wide sale, because experts know it to be durable, while it is remarkably low in price compared with compounds for similar purposes.

In the cold-water mixture for the inside of stables, outbuildings, etc., has found an extensive sale. As already stated, it only requires cold water to be made ready for use, yet it has been found to be absolutely waterproof, a point which will be appreciated by all property-owners. The Callahan rubber roof cement is of such a kind that it can be applied in wet weather, consequently is very valuable for quick work, as it cannot only be put on a wet roof, but will stick, and stick tight, after being applied. Machinists are familiar with the value of the steam-joint cement, which, although low in price, makes a perfect joint for steam-heating apparatus, as well as appliances for water, oil and gas. It adheres firmly to metallic surfaces, and will not blow out even under great pressure. Detailed information, as well as any number of testimonials relative to the Callahan compounds, can be supplied by the firm, who may be addressed at 218 Front street, New York.

A Pioneer in Steel Manufacture.—The manufacture of cast steel forms a very interesting part of the industrial history of the United States. The city of Chester, Pa., has had a record in this respect, and it is claimed more steel castings are manufactured in this city and vicinity than elsewhere in the country. In connection with this fact it may be stated that the first steel castings made in the United States were cast

at Chester by the McHaffie Direct Steel Castings Co. in 1871, which company was succeeded in 1873 by the Chester Steel Castings Co. The company has met a constantly increasing demand for its products by enlarging its plant and improving its facilities from time to time, and is now prepared to furnish steel castings of all shapes and sizes from one pound up to many tons in weight, using both the open-hearth and McHaffie processes. The thirty years' experience of this company, the best workmen, taken in connection with the fact that only the highest grades of materials are used, enable it to keep up the high character of its output, the company having been awarded medals for the excellence of its castings by a number of the leading expositions, including the Franklin Institute, Centennial Exposition and others. The buildings comprising the plant of this company now cover several blocks, the main open-hearth foundry being 450 feet long, while the McHaffie foundry building is almost as large. Besides these buildings, there are also buildings used for McHaffie annealing department, core shops, shipping department, pattern shop, pattern storage, engines and boilers, machinery and finishing departments, office, etc. The company has its own electric-lighting and power plant, and is equipped with modern appliances for handling work promptly. The company gives special attention to and is prepared to execute promptly orders for heavy open-hearth steel castings for electrical machinery, locomotive work and dredging machinery, also for sugar-mill, rolling-mill, brick-making and mining machinery, propellers and other marine work, bridge work, boiler work, crankshafts, gear-wheels, worms, etc., for which purposes the McHaffie steel is specially adapted.

TRADE LITERATURE.

A Perfect Light.—The General Incandescent Arc Light Co. of New York has sent out a card illustrated by an engraving of its lamps which show the brilliancy of illumination. Its claim is that they are perfect electrically as well sustained.

Fiber Gears.—The American Supply Co. of Providence, R. I., has sent out a leaflet illustrating its various kinds of fiber gears used for pickers and spinning and twister frames. The apparatus presents a combination of advantages which manufacturers appreciate.

Sturtevant Forges.—Really a very attractive little pamphlet is that describing and depicting the Sturtevant forges, which are offered in a variety of sizes suitable for the largest and the smallest plant. The list includes a list of the principal sizes as well as prices. It is issued by the B. F. Sturtevant Co. of Boston.

Attractive Calendar.—In the long list of artistic calendars in which there is such a competition the Wolf Company of Chambersburg, Pa., seems to have excelled many rivals. The beauty of its calendar for 1902 is that it contains no advertising matter whatever, and consequently will be hung in many offices where others would be consigned to the waste-basket. It represents a female portrait in colors, and is not only attractive, but artistic.

Very Essential.—The ammonia fittings used in connection with ice machinery are essential parts of this apparatus, as ice-makers are well aware. The Triumph Ice Machine Co. of Cincinnati, which has such a wide and deserved reputation for refrigerating machinery, manufactures a line of valves, cocks, tees, elbows and other fittings for users of ammonia. They are detailed in its catalogue recently issued, which will be sent to anyone on application.

Swim with the Current.—This practical adage appears on a leaflet recently published by the Draper Co. of Hopedale, Mass. It is especially applicable to cotton manufacturers, who, to secure themselves against competition, must keep abreast of the times by purchasing the most modern machinery. Incidentally it might be said that the Northrop loom, referred to in the leaflet, is a sample of up-to-date equipment. That it is finding favor is shown by the number of sales made by the Draper Company to some of the largest textile manufacturers in the United States.

Much in Little.—The merits of the new St. Charles Hotel of New Orleans will be placed before the friends and patrons of the management daily through the medium of two very attractive little calendars which have recently been issued. Every traveler in the South is well aware of the accommodations which are provided at this modern fireproof hotel by Mine Host Blakely, who has the merited reputation of being in

the front rank of his profession. The calendars are so useful and yet so attractive that it will pay anyone interested to write Messrs. Blakely & Co. and secure a sample.

Rapid Transfer.—A pamphlet recently issued by the C. W. Hunt Co. of West New Brighton, N. Y., deals with the very important subject of discharging vessels, and describes a coal pier on New York harbor equipped with an electric hoisting plant by the Hunt Company for this purpose. It is interesting to note that by use of the apparatus referred to the cost of handling is but seven and one-quarter cents per ton, compared with seventeen and three-quarters cents by the old method. On a tonnage of 25,000 annually the new method actually saves \$2625. Copies of the pamphlet will be sent to any address on application to the company.

Sullivan Engines.—Catalogue No. 45, recently issued by the Sullivan Machinery Co. of 135 Adams street, Chicago, describes and illustrates the celebrated Corliss engines manufactured by this company. The present designs are the results of years of experience of making the Corliss engines, and they represent a combination of the best material and most expert workmanship. The idea has been to formulate a pattern of graceful outline and to provide parts subject to wear with the most satisfactory devices for adjustment and method of lubrication. Apparently the Sullivan Company has been eminently successful in this respect. The catalogue is well printed, artistically illustrated, and will be appreciated by all experts who read it.

All Things Electrical.—Judging by the catalogue recently issued by the Electrical Material Co. of Baltimore, it has the right to this claim, for the book comprises one of the most complete, if not the most complete, lists of the kind ever issued; in fact, the illustrations and statistics give an idea of the wide range of the company's business far better than any description which might be included in it. In all, it comprises over 200 pages concerning overhead work such as wiring and insulators, interior connections, switches, switchboards, circuit-breakers, measuring instruments, lamps of all kinds, batteries, tools, brackets, bells, gas-lighting apparatus, equipment for blasting, and telephone and telegraph supplies of the latest patterns. Special departments are devoted to medical apparatus and electric fans. The Electrical Material Co. is also prepared to supply standard books on electrical subjects, and the appendix of the catalogue contains a list of such works; in fact, the catalogue is so replete with information for electricians that it is really indispensable. It is attractively printed and illustrated in colors, with a very artistic cover.

The Annual Statistical Report for 1900 of the American Iron and Steel Association, of which Mr. James M. Swank of Philadelphia is general manager, is now ready for distribution. Full details are given in its pages of the production of iron ore and the various forms of iron and steel in the United States in 1900 and immediately preceding years, the shipments of iron ore from the Lake Superior and other mines, the imports of Cuban and other iron ore, the production of coal and coke, the imports and exports of iron and steel and coal and coke, the production of manganese ore, the prices of Lake Superior iron ore, the prices of iron and steel, the tonnage of iron and steel vessels built in 1900 and 1901, immigration in 1900, etc. The separation of basic pig-iron from other pig-iron and the separation of acid from basic open-hearth steel, which was commenced a few years ago, is continued in the present report. Full statistics are given of Bessemer, open-hearth, crucible and miscellaneous steel castings. Statistics of the production of tinplates from the beginning of the industry in this country and of the imports of tinplates for a long series of years are also given. In addition to giving full statistics of our own iron and steel industries for 1900 the report gives a summary of the production of iron and steel, iron ore and coal in all foreign countries in 1900 and 1901. Canadian statistics for 1900 are full and complete. The necrological record is continued for 1900 and 1901. The price is \$3.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

New Corporations.

The Bank of Denmark, recently organized at Denmark, S. C., has elected D. M. Guess, president.

C. H. D Wade is interested in the bank being organized at Texala, Okla., with \$5000 capital stock.

The People's Investment Co. has been organized at Raleigh, N. C., by E. A. Johnson and others.

The Farm and Home Savings Association has been organized at Nevada, Mo., with \$20,000,000 capital stock.

T. J. Cole and others have organized the Oklahoma Mortgage & Loan Co., with \$25,000 capital stock, at Shawnee, Okla.

Hon. R. T. Barton has been elected president of the Farmers and Merchants' National Bank, organized at Winchester, Va.

The Kennedy Hill Building and Loan Association has been organized at Baltimore by J. W. Sindall and others, capitalized at \$600,000.

E. S. Butts and H. C. McCabe are interested in the American National Bank, being organized at Vicksburg, Miss., with \$100,000 capital stock.

It is announced that the Greensboro Loan & Trust Co. of Greensboro, N. C., has decided to open a savings department in connection with its other business.

A charter has been granted to the Farmers and Merchants' Bank of Keil, Okla., capitalized at \$25,000. R. F. Ellinger of Stillwater, Okla., is interested.

J. S. Kephart has been elected president, and T. Rinor, vice-president, of the Farmers and Traders' Bank, recently organized at Pleasureville, Ky., with \$15,000 capital stock.

The Choctaw Investment Co., recently formed at Little Rock, Ark., with \$100,000 capital stock, has elected J. W. McLoud, president; W. R. Abbott, vice-president, and T. S. Buzbee, secretary.

The movement to organize another bank at Pratt City, Ala., has reached a point where it is believed the organization will be completed in a few weeks. The business men of Pratt City and Ensley are interested in the project.

New Securities.

Messrs. Perkins & Hudnall of Ensley have purchased \$5000 in bonds of Wylam, Ala., at par.

The town of Meridian, Miss., will vote January 7 on the question of issuing \$25,000 in school bonds.

Chicago investors have purchased the issue of \$13,500 improvement bonds of the town of Mansfield, La.

Davidson county, Tennessee, has sold \$250,000 in 4 per cent. bonds to a syndicate composed of local banks.

Roby Robinson of Atlanta has purchased the issue of \$30,000 in 4 per cent. bonds of Meriwether county, Georgia.

Messrs. Hambleton & Co. of Baltimore have purchased \$12,000 in 4 per cent. bonds of the town of St. Michaels, Md.

N. W. Harris & Co. of Chicago have purchased \$54,000 in 5 per cent. bonds of the town of Marlin, Texas, paying 102.079.

The National Exchange Bank of Wheeling, W. Va., has decided to increase its capital stock from \$200,000 to \$300,000.

The issue of \$3500 in 6 per cent. bonds of the town of Biloxi, Miss., remains unsold, and may again be placed on the

market in the near future. Address the mayor.

An election at Kirkwood, Mo., has resulted in favor of issuing \$25,000 in improvement bonds. The mayor may be addressed.

The Beatrice Coal Mining Co. of Spring City, Tenn., has decided to issue bonds to the extent of \$100,000, bearing 5 per cent. interest.

An election held at Springfield, Tenn., has resulted in favor of issuing \$25,000 in bonds for improvements. The town clerk may be addressed.

It is announced that Laurens county, South Carolina, has sold \$75,000 in bonds to Cincinnati investors at an interest basis of 4½ per cent.

The issue of bonds to be placed on the market by the city of New Bern, N. C., amounts to \$15,000. The mayor will give particulars as to the sale.

Messrs. John L. Williams & Sons of Richmond, it is announced, have purchased \$200,000 worth of improvement bonds of Nashville, Tenn., from the First National Bank of that city.

It has been decided to place on the market an issue of \$20,000 in 5 per cent. improvement bonds decided upon by the town of Lake Providence, La. The mayor will probably negotiate the sale.

Elizabeth City county, Virginia, will probably issue \$18,000 in bonds for various purposes if authority is secured from the legislature. The board of commissioners may be addressed at Hampton, Va.

The city of Dallas, Texas, will probably vote on the question of issuing \$50,000 in bonds in addition to the amount already announced. Bids will be received until December 28 for the issue of \$75,000 in 4 per cent. refunding bonds. The mayor will give further particulars.

SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by Hugh M. Rae & Co., Wilmington, N. C., for Week Ending December 17.

	Bid. Asked.
Abbeville Cotton Mills (S. C.)	91
Aiken Mfg. Co. (S. C.)	92 95
American Spinning Co. (S. C.)	105
Anderson Cotton Mills (S. C.)	120 130
Arkwright Mills (S. C.)	117
Augusta Factory (Ga.)	72 73
Avondale Mills (Ala.)	52½
Belton Mills (S. C.)	101½
Bennettsville Mfg. Co. (S. C.)	95
Cabarrus Cot. Mills (N. C.), new	120 130
Clifton Mfg. Co. (S. C.)	177 185
Clinton Cotton Mills (S. C.)	121
Courtenay Mfg. Co. (S. C.)	115
Dallas Mfg. Co. (S. C.)	90 100
Darlington Mfg. Co. (S. C.)	90 95
Eagle & Phenix Mills (Ga.)	100
Enoree Mfg. Co. (S. C.)	111
Enterprise Mfg. Co. (S. C.)	98
Gaffney Mfg. Co. (S. C.)	113 120
Granby Cotton Mills (S. C.)	100½
Granby Cotton Mills (S. C.) 1st Pfd.	101½ 103½
Graniteville Mfg. Co. (S. C.)	165
Greenwood Cotton Mills (S. C.)	102
Henderson Cotton Mills (N. C.)	120 125
Henrietta Mills (N. C.)	200
King, John P., Mfg. Co. (S. C.)	95
Langley Mfg. Co. (S. C.)	107
Laurens Cotton Mills (S. C.)	140
Lockhart Mills (S. C.)	105 110
Louise Mills (N. C.)	100
Lynchburg Cotton Mills (Va.)	125 130
Lynchburg Cotton Mills (Va.) Pfd.	145
Manchester Cotton Mills (S. C.)	150 114
Mayo Mills (N. C.)	150
McColl Mfg. Co. (S. C.)	102½
Newberry Cotton Mills (S. C.)	117
Odeil Mfg. Co. (N. C.)	100½
Orr Cotton Mills (S. C.)	102½
Pacolet Mfg. Co. (S. C.)	190 200
Pelzer Mfg. Co. (S. C.)	172 185
Piedmont Mfg. Co. (S. C.)	185
Poe, F. W., Mfg. Co. (S. C.)	120
Raleigh Cotton Mills (N. C.)	116
Richland Cotton Mills (S. C.)	105
Richland Cotton Mills (S. C.) Pfd.	103½
Roanoke Mills (N. C.)	90 100
Sibley Mfg. Co. (Ga.)	75 78
Southern Cotton Mills (N. C.)	100
Spartan Mills (S. C.)	132
Trion Mfg. Co. (Ga.)	125 135
Tacapau Mills (S. C.)	128
Union Cotton Mills (S. C.)	138
Union Cotton Mills (S. C.) Pfd.	100½
Victor Mfg. Co. (S. C.)	110 112½
Warren Mfg. Co. (S. C.)	97 100
Washington Mills (Va.) Pfd.	106
Whitney Mfg. Co. (S. C.)	100½ 120
Wilmingon Cot. Mills (N. C.) Pfd.	100 105
Wiscasset Mills (N. C.)	115

During the past year Mr. Joseph S. Mc-Kell of Ohio has spent \$150,000 in building about 100 houses in one section of Dallas, Texas.

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Letters of Credit Available Everywhere.

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Capital, - - - \$2,000,000
Surplus, - - - 3,000,000
Transacts a General Trust Business.

Acts as Fiscal Agent for the payment of Bonds, Coupons, Dividends, etc., of States, Municipalities, Railroads and other Corporations; as Trustee under Mortgages or Deeds of Trust securing Issues of Bonds, and as Registrar and Transfer Agent of Stocks and Bonds; as Trustee of Estates and Individuals; as Administrator, Executor, Guardian and Receiver.

A Legal Depository for Court and Trust Funds. Money Loaned on Approved Collateral. Interest Paid on Deposits.

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George B. Baker. George S. Edgar.

**BAKER, EDGAR & CO.,
Bankers and Brokers,**
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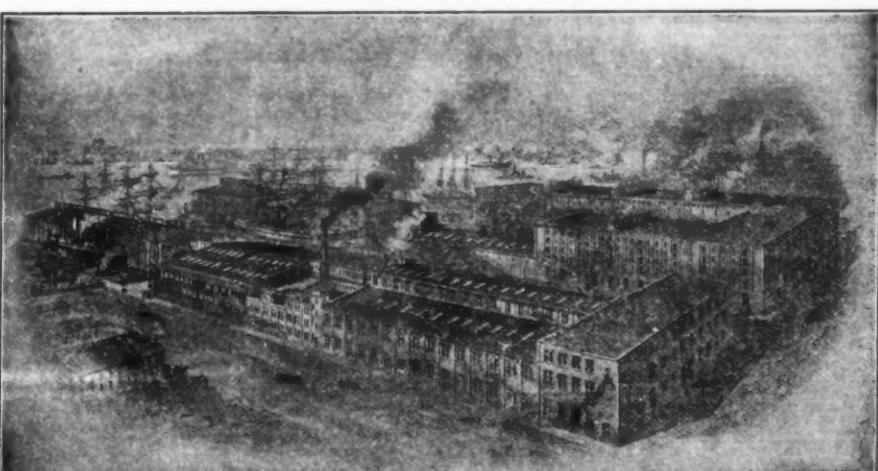
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E. S. GREEN, Town Secretary,
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Notice to Contractors.

GLOSTER, Miss., Dec. 11th, 1901. BIDS for the construction of and furnishing of material for the erection of a Water Works and Electric Lights System for the town of Gloster, Miss., according to plans and specifications now on file in the Mayor's office. Sealed bids will be received until 12 o'clock noon, Tuesday, January 7th, 1902. All bids must be accompanied with solvent bonds to the amount of \$15,000. Said contract will be let to the lowest and best bidder. Board reserves right to reject any and all bids. G. M. CAUSEY, City Clerk.

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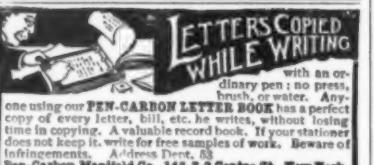
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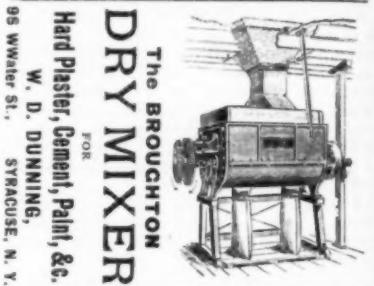
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Bader, Adamson & Co.	37	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Peck-Hammond Co.	24	Thomson, P. H.	20	
Baer, Richard P., & Co.	*	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Peeler, Frank.	14	Titus, E. E.	*	
Bailey-Lebby Co.	41	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Penberthy Injector Co.	56	Toomey, Frank.	34	
Bailey, John T., & Co.	26	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Pen-Carbon Manifold Co.	26	Torber & Peckham.	35	
Baird, U. Machinery Co.	32	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Perry, Nathaniel V.	6	Tower-Biford Elec. & Mfg. Co.	64	
Baker, H. C., & Co.	22	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Petroleum Iron Works Co.	18	Trenton Iron Co.	29	
Baker, Edgar & Co.	29	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Philadelphia Textile Specialty	18	Trevor Mfg. Co.	45	
Balderton, H., & Son.	40	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Phoenix Iron Works Co.	12	Triumph Electric Co.	55	
Baldwin Locomotive Works.	13	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Phoeniz Iron Works Co.	12	U		
Ball Engine Co.	16	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Union Iron Works Co.	*	Union Iron Works Co.	*	
Ball & Wood Co.	16	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	United Tephera Co.	82	University School for Boys.	7	
Baltimore Engraving Co.	49	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Upton, W. B., Co.	51	U. S. Cast Iron Pipe & Pdy. Co.	51	
Baltimore & Ohio R. R.	49	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	U. S. Mineral Wool Co.	41	U. S. Mineral Wool Co.	41	
Baltimore Steam Packet Co.	49	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	J	V				
Barber, A. H., Mfg. Co.	22	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Valk & Murdoch Iron Works.	18	Valk & Murdoch Iron Works.	18	
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Barker, H. C., & Co.	22	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Victor Electric Co.	83	Victor Electric Co.	83	
Balderson, H., & Son.	40	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Price Machinery Co.	33	Wiltz Mfg. Co.	16	
Baldwin Locomotive Works.	13	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Price & Co.	44	Virginia Bridge & Iron Co.	6	
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Baltimore & Ohio R. R.	49	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	J	Queen City Printing Ink Co.	48	W		
Baltimore Steam Packet Co.	49	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Queen City Printing Ink Co.	48	Walker & Elliott.	38	
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Blaekes Mfg. Co.	17	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Wansome & Smith Co.	8	Warner, Charles, Co.	8	
Blanton, Jr., E. A.	38	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Warren-Burnham Co.	33	Warren Chemical & Mfg. Co.	42	
Blythe, Richard A.	28	Gates, Sam'l. H., & Co.	*	Genuine Bangor Slate Co.	12	Jackson Mfg. Co.	Warren-Ehret Co.	43	Washburn, A. H.	46	
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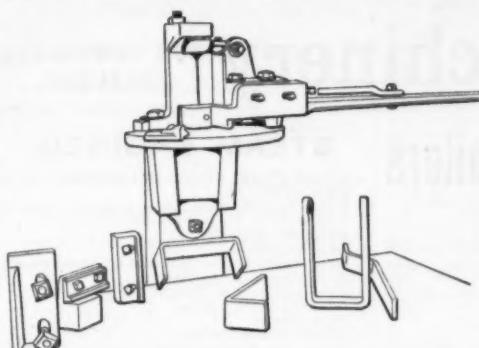
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28x60. 26x48. 26x60. 20x48.

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12 and 21x24 Porter-Alien Cross Compound. 16x16 Ball. 15x14 Ball. 12x12 A. & S. 8x10 Russell. 10x12 Ball.

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Two No. 1 Scalpers.

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100 feet 17" Screw Conveyor.

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Seven with boilers attached.

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1 20" and 36" x 48" Tandem Hamilton Corliss, wheel 22" x 36" face.

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1 26x72 Wheellock.

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110, 220, 500-volt motors, from 1 H. P. to 200 H. P.

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22" x 42" Wright Corliss.

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Wainwrights, 500 h. p. National, 600 h. p.

Stillwell-Bierce Open Heater. All guaranteed.

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One 200 h. p., 310 r. p. m.

One 135 h. p., 290 r. p. m.

One 60 h. p. and one 35 h. p.

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One 80 h. p. water front.

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3, 4 and 5 and 6" Blickford radials, new.

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Double-end Kent punch and shear.

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Also large assorted stock of other tools.

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Rope Transmission Rig

CONSISTING OF

1 22 foot Grooved Wheel, 73" face with 22 grooves for 2 1

FOR QUICK DELIVERY.
18", 22", 24", 26", 28", 30", 32" and 36" Lathes. Any length.

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New and Second-Hand Boilers, Engines, Mining Outfits and General Machinery.

3 100 H. P. Return Tubular Boilers, made by the Penn. Boiler Works (new, never having been in brick work) with stack and breeching complete.

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Will dry 200,000 feet each 24 hours. Is good as new, with pump, etc. Less than half price. Six return flue tubular boiler, 125 to 150 H. P.; will carry 90 to 120 lbs. steam. All perfect. Immediate delivery.

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These machines in first-class condition. Write for full particulars.

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SPECIAL—40-H. P. OTTO DOUBLE CYLINDER

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Second-hand Corliss Engines,

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FOR SALE—Band Saw, Scroll Saw, 7" and 14" Floorers, Circular Re-Saw, E. B. Surfaces, Stationary Bed Planers, Planers and Matchers, Du Four Picket Header, Shapers, Moulder, Aut. Knife Grinder, "Doig" 8" Tube Aut. Nailer, Blind Slab Tenoner, Blind Stile Mortiser and Borer, Knife Balance, Swing Saw, Lathes, Shaving Fans. Cash buyers for new or re-manufactured wood-working machinery, can save money by writing to

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Correspondence solicited.
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100 h. p. 12x24 Buckeye Automatic.
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The above are all in first-class condition and ready for shipment. Will buy, sell or exchange.

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1 1000-ft., 1 1/2-in. Sherman Cableway, with Lambert engine, complete.
Stiff Leg, Guy and Breast Derricks, hand and steam power.
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HIGH SPEED ENGINE BARGAINS.

No. H. P. Maker. Cylin. Speed. Whls.

2 150 Buckeye "C" 14 1/2x16 240 72x15

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Five 72" x 16" High Pressure Boilers, now carrying Hartford Insurance for 125 lbs. steam pressure. Can be delivered about January 10th next. Full line of all kinds of machinery in stock. Write for prices. Machinery that has been used, but in good condition, also bought.

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Wood and Iron Working Machinery,
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If in the market for machinery, send for our descriptive price list.

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2-D-HAND BERRYMAN HEATERS,
all sizes. Taken in trade for our Improved Berryman. In perfect order. Tested and guaranteed. Prices reasonable. BENJ. F. KELLEY & SON, Makers, 91 Liberty St., N. Y.

Second-hand Engines, Boilers, etc.

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3 66" x 16" Standard Tubular Boilers.

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Root Blowers, Nos. 2, 3 and 5.

Large assortment of iron and wood working tools.

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For Sale—Dynamics, Engines, Boilers, &c.

DYNAMOS—Brand new, modern, best make, fully guaranteed for one year, 110 volt, compound wound.

27-light Dynamos, all complete, \$67.50.

53-light " " " 112.50.

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We have also some first-class second-hand Machinery, as follows: Alternating Current Dynamos—3 1300-light Westinghouse at \$385 each, also others.

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100 H. P. Westinghouse Compound, \$475.

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Also some 150, 250 and 350 H. P. Engines.

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Also larger and some smaller Boil. rs.

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Steel Pressure Blowers. Vertical Boilers, 6 to 60 H. P. Hor. Tub. Boilers, 27 to 100 H. P. 3 Hor. Tub. Boilers, 125 H. P., fine condition. 15, 25, 25, 100 H. P. Slide Valve Engines. 3/4 and 1 1/2 H. P. Vertical Engines. 2 and 7 H. P. Gas Engines. 3 H. P. Supman Coal Oil Engine. Conan Corn Cooker. Corn Silker. Corn Cutter. One Fisher Kettle. Open Kettles. Lot Trucks. 6 Hughes Steam Pumps. 4 1/2" x 6" x 6" 4" suction, 1" discharge. One each Worthington and Dean Duplex Pumps and Receivers. A. Woods A Flooring Machine. Granite & Woods Planer. 24" x 18" x 18". Tenon Machine. Mortising Machines. Self feed Rip Saws. Sliding Carriage Cut-off Saw. Saw. Saw. Variety Moulder. 18" and 20" Pony Planers. Huntingdon Hor. Boring Machine. Machinery, Engines and Boilers Bought, Sold and Exchanged.

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FLOATING PILE DRIVERS

No. 2 42" x 20" 4' x 4' x 4' 4"

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No. 8 50' 9" x 23' 0" x 6' 6"

3" No. 9 50' 9" x 22' 6" x 4' 2"

2 OSGOOD DREDGES

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General Electric, three phase, sixty cycle, Inductor Motors

1 15-H. P. 115 volt, speed 900, price \$350.00

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Chicago delivery, ready to ship. Hundreds of other bargains in stock. **GUARANTEE ELECTRIC CO.**

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200,000 pounds Second-Hand Riehle

Testing Machine, in first-class condition. Address

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Machinery of all Kinds manufactured.

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Five hundred pieces of Second-hand

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375-13x12 Ball automatic.

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192-11x12 New York Safety.

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RAILS

Light or heavy section.

WE BUY OLD RAILS if fit to relay.

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Largest Stock of Engines, Boilers, Dynamos and General Machinery. Rebuilt and Guaranteed.

Immediate Delivery.

1 28" x 48" Green Automatic. 1 16 1/4" - 32" x 36" Cross Compound Fitchburg Automatic. 1 12" - 20" x 16" McEwen Automatic. 1 22" x 32" Water-tower Automatic. 2 20" x 42" Green Automatics. 2 17" x 30" Williams Automatics. 1 15 1/4" x 16" New York Safety Automatic. 1 14" x 14" Harris Corliss. 1 14" - 27" x 14" Westinghouse Compound. 2 15 1/4" x 18" Armstrong & Sims Automatic. 2 14 1/4" x 18" Beck Automatic. 1 14" x 16" McEwen Automatic. 1 13" x 14" Vertical Fitchburg Automatic. 1 10" - 18" x 22" Ball Tandem Compound. 3 12" x 18" Russell Automatics. 2 13" x 12" Ball Automatics. 1 10" x 16" Buckeye Automatic. 1 9" x 9" New York Safety Automatic. 2 8 H. P. Westinghouse Compounds. 5 75 H. P. Westinghouse Standard Automatics. 3 65 H. P. Westinghouse Compounds. Also a great many others, all types. Send for special list.

BOILERS—2 300 H. P. Climax Vertical Water Tube Boilers. 2 280 H. P. B. & W. Water Tube Boilers, 200 lbs. steam pressure. 1 300 H. P. A. & R. Water Tube Boiler, 105 lbs. steam pressure. 2 100 H. P. National Water Tube Boilers. 5 66" x 18" Horizontal Tubular Boilers, 125 lbs. steam pressure. 3 66" x 18" Horizontal Tubular Boilers, with Hawley down draft. 3 66" x 16" Horizontal Tubular Boilers, 125 lbs. steam pressure. 3 66" x 16" Horizontal Tubular Boilers, 200 lbs. steam pressure. 4 54" x 16" Horizontal Tubular Boilers, 100 lbs. steam pressure. 2 48" x 14" Horizontal Tubular Boilers, 100 lbs. steam pressure.

Several full Railway and Electric Lighting Equipments. Large stock of Machine Tools. Also a large assortment of New Machinery for immediate delivery—Lathes, Planers, Shapers, Drill Presses, Milling Machines, Dynamos, Motors, Gas and Gasoline Engines, Steam and Centrifugal Pumps, Contractors' and General Supplies. Write for special catalogue and prices.

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One marine steel fire box boiler 10 feet long, 73 inches diameter. Eight cylinder boilers, 36 inches diameter, 36 feet long. One Lane & Bodley engine, 14x20. One smoke stack, 4 ft. in diameter, 61 ft. long. One single cylinder slide valve 15 H. P. hoisting engine. One Wm. E. Hill & Co.'s drag saw. One surfer.

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Water Wheels

FOR SALE.

Two Pair 35" Special Left Hand Shaft Turbines.

These two pairs of turbines coupled together will develop, under 15 feet working head of water, 400 H. P., using a total of about 18,000 cubic feet of water per minute; speed of turbine shafts 165 r. p. m. Turbine shafts hammered wrought iron, 5 1/2" dia. Turbine runners with steel buckets. The pedestal bearings are supported on columns. The center casing for each pair of these turbines made of riveted steel, with draft tubes 6 ft. dia. Both pairs of turbines fitted with upright gate shaft and gear connections. Have not been used. For further information write to the undersigned.

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1 25-h. p. locomotive boiler, 1 15-h. p. return tubular boiler and ten radiators, also 6 miles 40-lb. steel relaying rails. Southern delivery, first of January, and 40,000 capacity flat cars.

LOCOMOTIVES, standard and narrow gauge. 1 25-h. p. ret. tub. boiler; 70 ton 40 lb. steel T rail, immediate delivery. Also a Forney type saddle tank standard gauge Porter locomotive, cylinder 12x18, diameter of driving 42", thickness 2", also an 8-wheel American type, Rodgers make, 14x22" cylinder. 1 Saw Mill, capacity about 15 or 20,000 ft. a day; also 300 Standard M. C. B. good second hand couplers, one 42" gauge passenger coach and two 75-H. P. return tubular boilers. These goods are all right. Write JOS. E. BOWEN, Citizens Bank Bldg., Norfolk, Va.

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One Practically New 15-Tons

Kelley Steam Road Roller

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Relaying Rails for Sale.
Immediate Delivery.

230 tons 6" Johnson Girder Rails, Section No. 62, in good condition, at Washington, D. C. Also other rails of different weights and descriptions at various points.

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Six 75-ton Ice Machines,

Vertical compression type, complete in every way.

We purchased them from Armour & Co., Chicago.

They were discarded owing to the necessity for increase of power and for no other reason. They are in excellent condition, and we are now engaged in removing them from their Chicago Stock Yards Plant. They can be inspected, and two of them are still in use. This is an excellent opportunity and will make exceedingly alluring propositions to purchasers.

Full description and information will be furnished on application.

LOCOMOTIVE.

One Rogers Locomotive, standard gauge, 30 ton.

Chicago House Wrecking Co.

W. 35th and Iron Streets,

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FOR SALE.

Two Davis & Furber Machine Co.'s Nappers; good as new; used only short time. One Miller Press & Machine Co.'s Press; used only 6 months.

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RAILS—LOCOMOTIVES.

1500 tons 30 and 35-lb. Iron T Relaying Rails and Splices. Locomotives of various types, sizes, etc., at our shop here, overhauled and ready for service, for wood or iron track.

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ATLANTA, GA.**LOCOMOTIVES.**

1 6-ton Byers geared, 36" gauge. 1 12-ton Dunkirk geared, wood rails, 36" gauge. 1 7-ton Dunkirk geared, wood rails, 36" gauge. 1 16-ton 10x16, 4 drivers with tender, 36" gauge. 1 9-ton Porter Saddle Tank 7x12 cylinders, standard gauge.

Get our prices on new Saddle Tank and Mogul Locomotives.

SCOTT, LOW & CO.,
Empire Building, Pittsburgh, Pa.**KILBY LOCOMOTIVE & MACHINE WORKS**

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BUILDERS OF

Logging Cars.

Prices and specifications furnished upon application.

WANTED.

Old Locomotives, Cars, Iron and Steel Structures and Machinery of all kinds. Scrap Iron and Steel. Address

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Locomotives, FOR
Cars, SALE.
Rails,

For every gauge, weight and service.
Write for prices.

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FOR SALE.**NEW STEEL RAILS**

800 tons of 40 lb. with angle joints.

200 tons of 25 lb. with plain joints.

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TIDEWATER DELIVERY.

Relaying Rails Bought and Sold.**THE STEEL RAIL SUPPLY CO.**

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FOR SALE.

50 tons 20-lb. and 100 tons 30-lb. first-class Steel Relaying T Rails, with splices, in central Pennsylvania, ready for immediate shipment. Several cars New Rails, light sections, for immediate shipment.

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Railway Equipment

Locomotives, Passenger and Combination Cars, Flats, Gondola and Box Cars.

Both Standard and Narrow Gauge.

RELAYING RAILS, all Weights.

JUSTICE COX, Jr. & CO., Ltd.

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RE-LAYING RAILS!

All of the 50, 56 and 60-pound Steel Re-laying Rails from the Washburn, Bayfield & Iron River Railway, several thousand tons in all. IMMEDIATE DELIVERY.

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FOR SALE.

Passenger Type Locomotive—4 ft. 8 1/2 in. gauge, cylinders 15 in x 22 in., drivers 53 in. centers. Westinghouse Air Brakes—weight 25 tons, capacity of tank 2000 gallons. Prompt delivery. Write for description and photograph.

BENJAMIN WATSON,

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NEW YORK CITY.

STEEL RAILS, CARS, LOCOMOTIVES, RAILROAD SUPPLIES.

FOR SALE.

RELAYING RAILS

New Frogs and Switches, all sizes.

FREIGHT CARS.

1 McGowan 4-inch 7"x6"x10" Duplex Pump.
1 Buffalo 3-inch 6 1/2"x5 1/2"x6" Duplex Pump.
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1 Marsh 1-inch Boiler Feed Pump.

Also SCRAP IRON.

MAY & SPALDING, Atlanta, Ga.

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300 Rogers Ballast Cars, built in 1896. About 100 tons of 20-lb. steel relaying rails and splices. Southern delivery. About two miles of 30-lb. steel relaying rails and splices. Southern delivery.

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1 standard gauge 20-ton Locomotive, saddle tank, good condition. 1 standard gauge 14-ton Locomotive, saddle tank. 1 18-inch gauge 4-ton Locomotive and 40 Ton Cars, suitable for mining, plantation work, etc. 5 Flat Cars, standard gauge. 4 Logging Cars, standard gauge. 4 miles of 50-lb. Steel Relayers, good condition. 4 miles of 16-lb. Steel Relayers, good condition. All for prompt delivery. Further information write SABEL BROS., JACKSONVILLE, Fla.

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120 tons first-class steel relaying 40 and 45 pound rails, small tonnage 16 and 25 pound new rails, second hand machinery, boilers, etc. Cash paid for abandoned works, railway or other equipment.

J. B. JONES & CO.

310 to 320 Morgan St., ALLEGHENY CITY, PA.

FOR SALE
FREIGHT, PASSENGER AND LOADING
LOCOMOTIVES
AND
CARS QUICK
DELIVERIES
F. M. HICKS,
225 DEARBORN ST.
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FOR SALE.**Second-Hand****Locomotives.**

M. SABEL & SONS,

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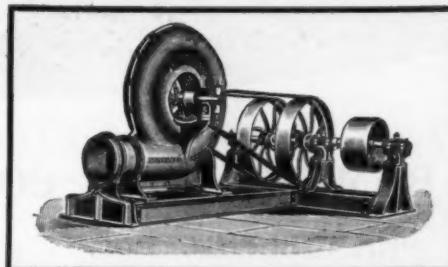
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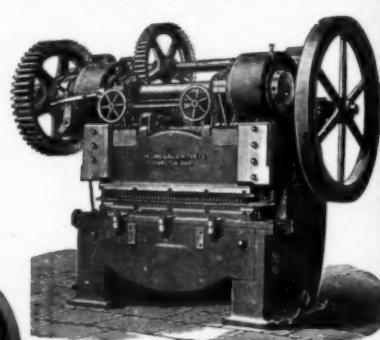
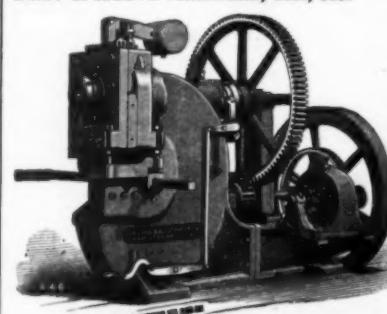
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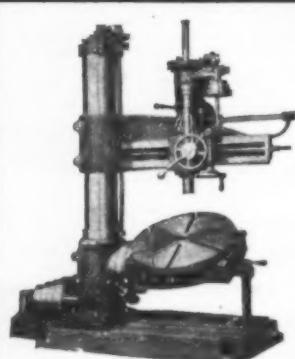


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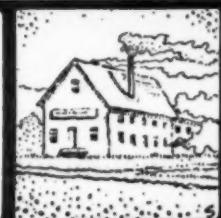
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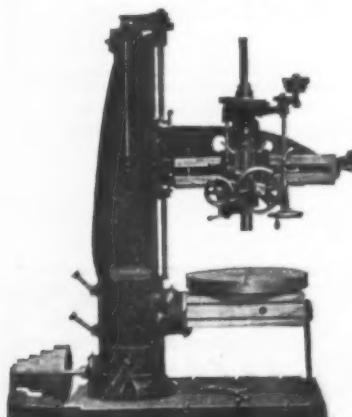
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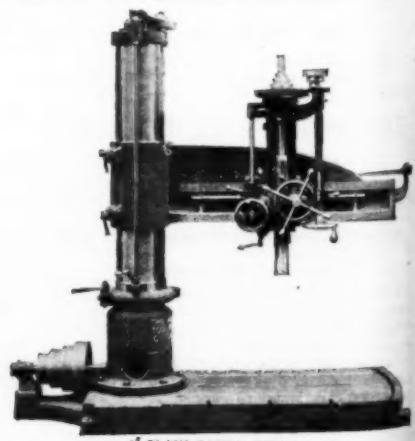
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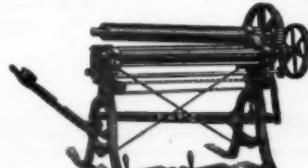
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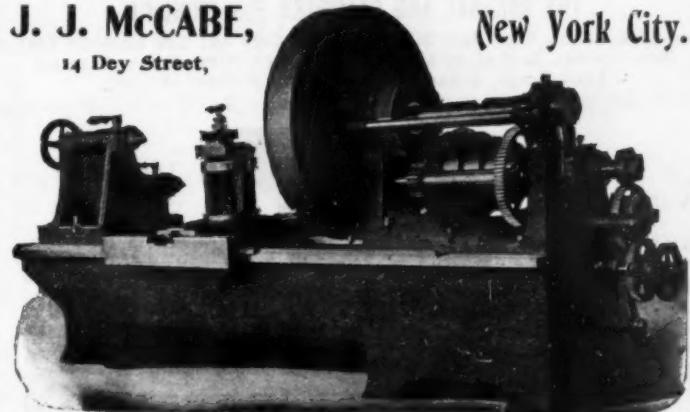
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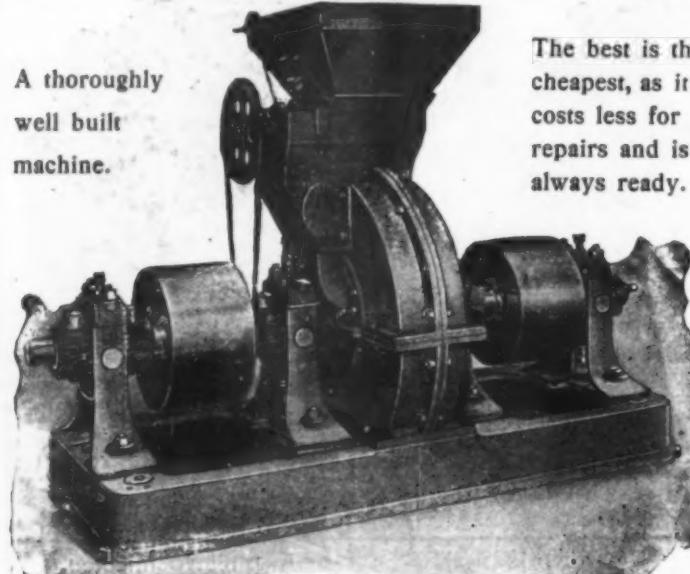
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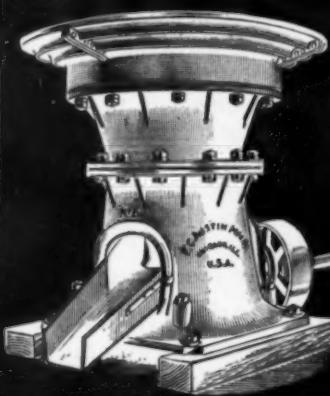
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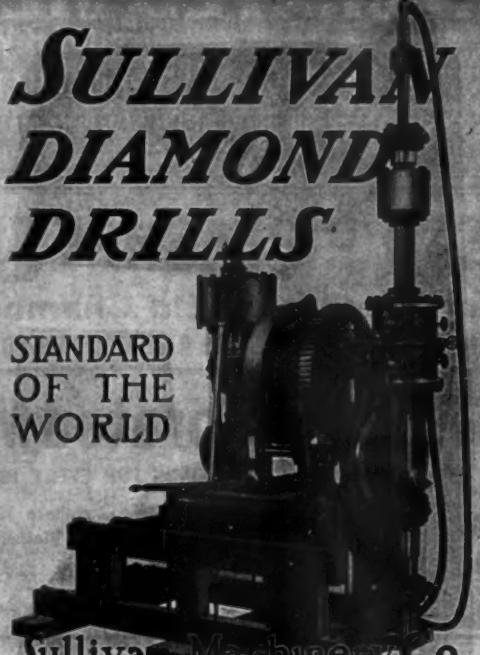
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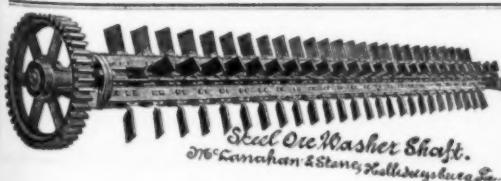
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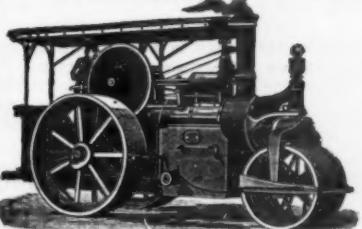
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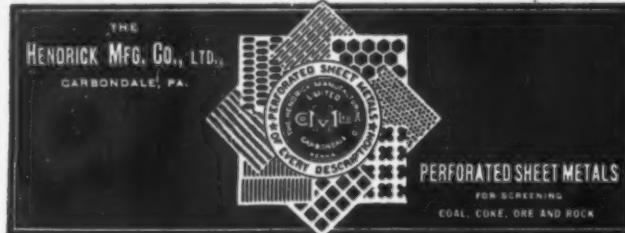
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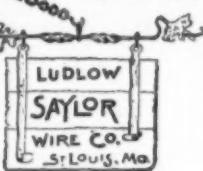
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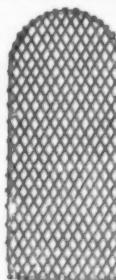
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Wire Railing for Cemeteries, Lawns, Gardens
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Composition and Ready Roofing, etc.

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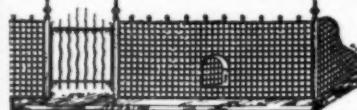
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High Grade Metal, Slate and Gravel Roofing

Covering Buildings of Permanent Character.

Lowest Figures. Prompt Estimates.

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Metal Work and Asphalt Gravel Roofing done by us. A few other contracts, covering of which is Felt and Gravel Roofing and all Metal Work.

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FIRE, SOUND AND VERMIN PROOF INSULATOR.
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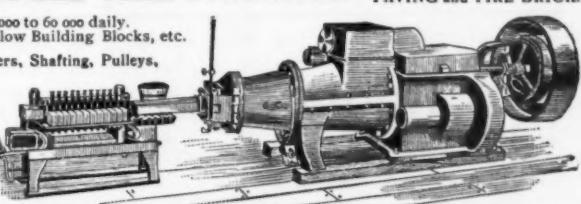
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FOR YOUR ROOFS ISOLATED MILLS

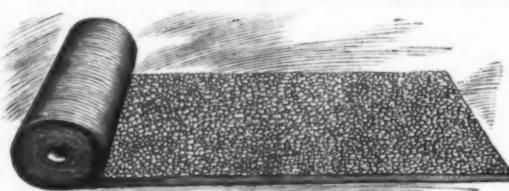
It is made with

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and is very DURABLE.

It does not require PAINTING

Because it is Stone Surfaced.



Write for prices, etc.

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It suits the Southern climate, and the sun does not dry the life out of it as it does tarred felts.



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STEEL BUILDINGS.
SHEET IRON WORK,
GALVANIZED IRON WORK,
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PLANTS, CANE AND BEET
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STAIRWAYS, BALCONIES AND
ROOFS,
ELEVATORS, GAS HOLDERS AND
TANKS.

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The Strongest and Most Economical Mortar Colors
in the Market.

RED, BROWN, BUFF AND BLACK.

One-half the amount of our MORTAR COLORS will do the work of any other and they are unsurpassed in STRENGTH, FINESSE and BODY. Write for samples and quotations.

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Improved Design that never
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Painting with a Cyclo Painting Machine



reduces the cost of application to a minimum. We guarantee the machine for strength, simplicity and efficiency for applying

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which is fireproof, washable and weatherproof, and made for both exterior and interior use. It is made in seventeen colors and white, and it will not scale or wash off.

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Acid, Gas and Fire-Proof.

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Roof
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Until you get
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Portable Asphalt Gravel
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STOWELL MFG. CO.
JERSEY CITY, N. J.
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It will leave
money
in your pockets

RAW HIDE
WATER PROOF
PAPER.

Painting

For A Purpose Use

Colonial Paint

Manufactured by us, has no superior in preventing Rust in Iron or Decay in Woodwork. A perfect covering.

Can be Used in Any Climate. Lasting Qualities. Low in Price.

Allow us to prove how really good this Paint is. Color Card Booklets free.

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The Colonial Paint & Varnish Co.
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Sold in Paste Form or Mixed Ready for Use. Warranted Strictly Pure Linseed Oil Paints—Nothing better made—THE STANDARD for half a Century.

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FOR PAINTING ALL EXPOSED IRON WORK, IRON BOTTOMS OF VESSELS, ETC. It is a perfect paint, drying hard and smooth, giving a fine finish and will outlast any other paint.

We want to quote you prices with sample.

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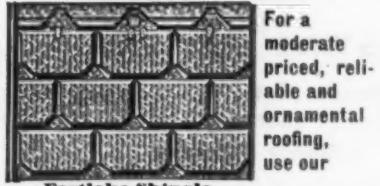
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—6 Styles and Sizes.—
to meet all requirements.
Unsurpassed for efficiency.
A catalog for the asking.

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Galvanized



For a
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priced, reli-
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use our

EASTLAKE SHINGLE.

Telescope sidelock. Largest overlap of any shingle made. Leakage impossible. Write for Catalogue E, containing full information.

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Made in All Colors.
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Tough as Leather

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WILL BE BUILT EITHER
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AS DESIRED

GANG EDGER
MODEL OF FEBRUARY 1901

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NEW AND USEFUL
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SEE THE NAME SMITH THAT'S YOUR GUARANTEE FOR QUALITY

SPECIAL FEATURES

The gauge and adjustable saw are controlled by the setting of levers and can be adjusted to $\frac{1}{2}$ in.

The feed is positive and uniform, this being secured by using a patented roller steel link chain, instead of a short belt.

The rate of feed is from 100,000 to 125,000 feet per day.

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Two small shoes are placed at the cutting edge of the saws, over which the stock passes. These shoes take the thrust of the saw on the lumber, and prevent all ducking or trembling of it, after having left the feed roll. They can be instantly dropped down out of the way, when replacing or removing the saws.

Machine made in two sizes; one 27 $\frac{1}{2}$ wide x 4 $\frac{1}{2}$ thick, the other 31 $\frac{1}{2}$ wide x 4 $\frac{1}{2}$ thick.

H. B. SMITH MACHINE CO.
SMITHVILLE, N.J.

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C. G. SMITH & CO.

"Thirty days' trial before purchase" is our guarantee of your satisfaction.

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HEADING SAWING MACHINES,
HEADING TURNERS,

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Lathes for turning Handles for Brooms, Mops, Forks, Hoes, Axes, Picks, Hammers, Cant Hooks, and for Ball-Bats, Peavy-Stocks, Pike-Poles, Spokes, etc.

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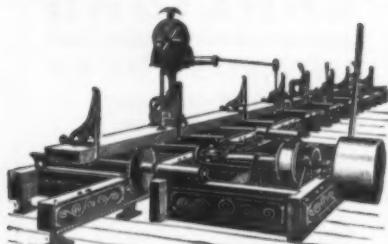
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We also manufacture the popular

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Sawing
Machinery.**

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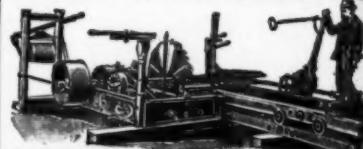
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Machinery.**

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Rock Maple Cogs on shortest possible notice. We make Cogs with blank head to be spaced and dressed after being driven; but make a specialty of ready dressed cogs, which are ready to run the moment driven and keyed. Send for circular L.

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Saw Mill Men

INCREASE YOUR OUTPUT.

A Soule Steam Feed will do the work, and cost little. Will pay for itself quickly.

Write for special prices.
SOULE STEAM FEED WORKS,
Send for Catalogue "M" MERIDIAN, MISS.

ATKINS SILVER STEEL SAWS

1901—Highest Awards, Two Gold Medals at the Pan-American Exposition, Buffalo, 1901.



Guaranteed the Best
Circular, Band, Gang,
Crosscut, Hand, etc.

Write for Prices.

E. C. ATKINS & CO.

INDIANAPOLIS, IND.

MEMPHIS, TENN. ATLANTA, GA. PORTLAND, ORE. MINNEAPOLIS, MINN. NEW YORK CITY

THE T. WILCE CO.

Polished Hardwood Flooring,
Kiln Dried, Bored and End-Matched.

22d and Throop Streets,

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Maple Flooring for Cotton Mills, Factories, Warehouses and Buildings for like purposes a special feature.
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CABLE "HEALD."

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HARDWOODS AND POPLAR

Sawed or in the Log, for Domestic or Foreign Trade.

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Manufacturers of Oak, etc., For Foreign and Domestic Markets.
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BAND SAWED POPLAR, ASH, WALNUT, CHERRY, ETC.



Millett's Patent
Portable

Core Oven

All complete and ready to put the fire in.

No one who makes small cores can afford to be without it.

DOUBLE DOORS, One closing the oven when the other is open.

Saves Fuel. Saves Time.

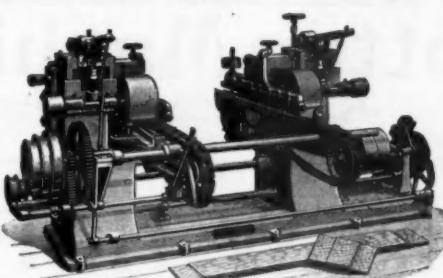
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Millett Core Oven Co., BRIGHTWOOD, MASS.

A NEW AND IMPROVED DOUBLE TENONING MACHINE.

"GRAND PRIX"
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Decoration Legion of Honor,
Paris, 1900.

Poster showing this and
other machines mailed
free.



No. 10 Double Tenoner. (Cut-Off Saws in Front).—Will work from 6 to 78 inches between shoulders of tenons, and up to 20 inches wide or 7 inches thick.

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A Cutter Head without a "Make-Ready"
Is like a Saw without "Set."

The fixture of Circular Bits upon seats inclined for clearance within the groove for single tongue and groove Flooring, and for clearance above the groove for Wainscoting, is the "happy fixture" which like the set in a saw clears away all friction and protects cutters from burning. This feature is found in its most perfect state in

The Shimer Cutter Heads

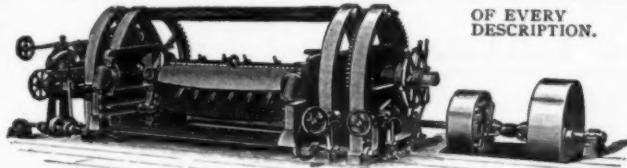
Figs. 22 and 23 and Figs. 202 and 203.
The Latest development of a Perfect Cutting Tool.

It is this feature that forms the "make-ready" that protects the Bit points from excessive wear. Our Catalogue, No. 23, explains these carefully, as also two other styles of SHIMER CUTTER HEADS for Flooring, Ceiling or Siding.

Look for our Name and Trade Mark. None genuine without it.

Address **Samuel J. Shimer & Sons, MILTON, PENNSYLVANIA.**

We are Positively Headquarters for Strictly High Grade
VENEER CUTTING MACHINERY



OF EVERY
DESCRIPTION.

YOU WANT THE BEST. WE HAVE IT.

THE COE MFG. CO., Painesville, Ohio, U. S. A.
ESTABLISHED 1852.

**WOOD WORKING
MACHINERY**
FOR GENERAL SHOP WORK
NO. 173
Double Iron Saw Bench
With Friction Countershaft.
S. A. WOODS MACHINE CO.
Est. in 1854.
SO. BOSTON, MASS.

We Manufacture
Wood Working Machinery
Of All Kinds.

We shall be pleased to send you a copy of our new Catalog if you will write us.

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**New Orleans
Wood Preserving Works**

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Street,
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Louisiana.

The latest improved plant for the
manufacture and perfect treatment
of Wood with Creosote
Oil or other preservative. Direct
shipping and rail connections
to all points.

To Users of Tenoners:

We were the first Company in the United States to bring double end Tenoners to their present state of perfection, and by the improvement of putting the cut-off saws in front, have always held the lead.

SOME OF ITS IMPROVEMENTS:

Automatic Feed, Automatic Setting Device, With or Without Copes; Cut-Off Saws working in front, relieving the Cutter Heads of unnecessary work; the Bur Raised by the Saws removed by Cutter Heads; Single or Double Tenoning Heads, Three Speeds of Feed, Adjustable Sectional Pressure Bars, etc. Machine on platen or base is much stiffer and moves perfectly true.

Prices, cuts and full information on application.

270-290

W. Front St.,

CINCINNATI, OHIO.

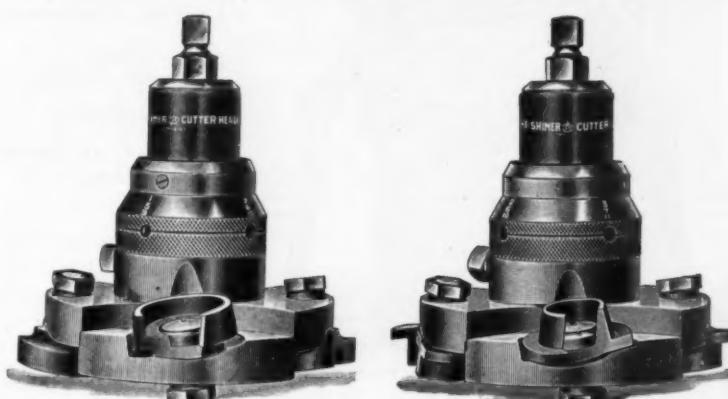


Fig. 202.

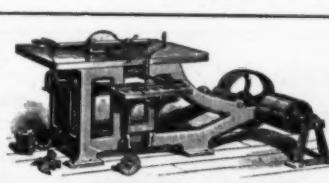
Fig. 203.

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SAW MILL SET WORKS.
CLAPBOARD MACHINERY,
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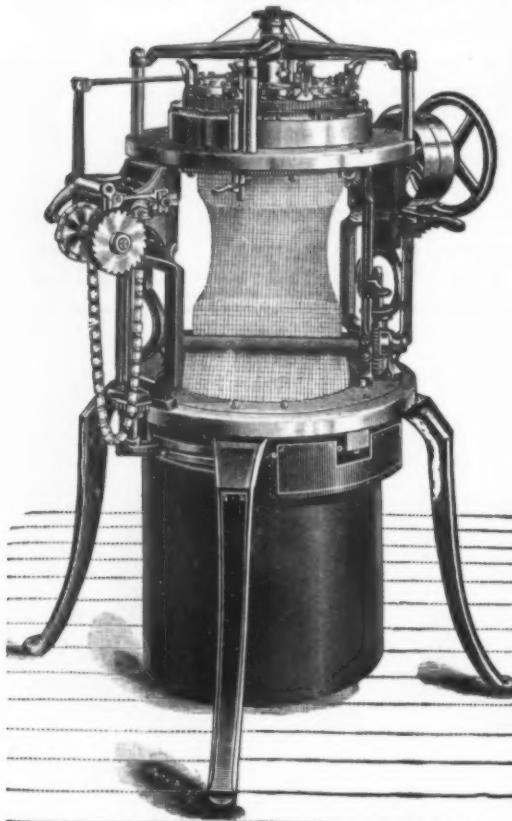
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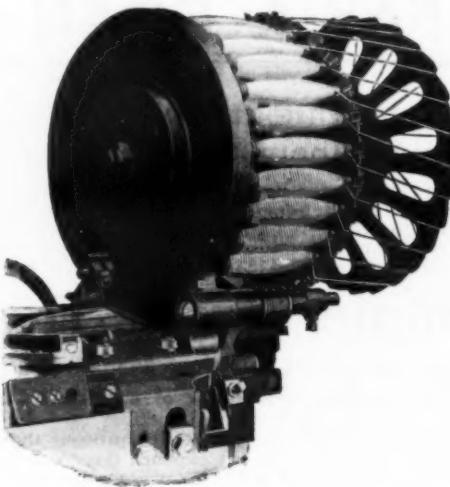
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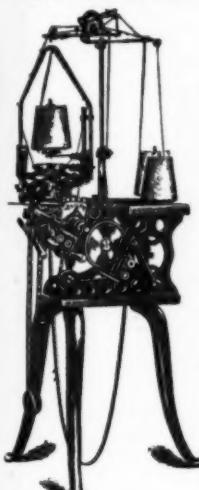
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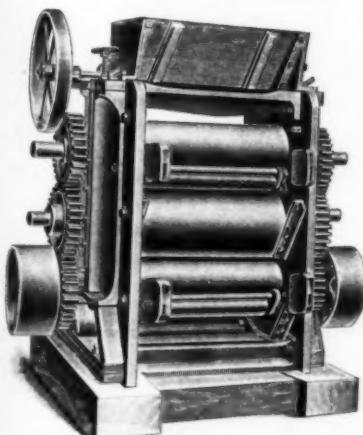


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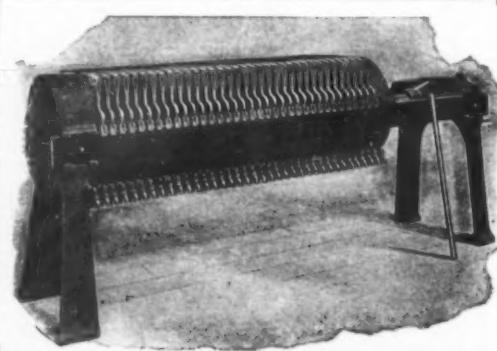
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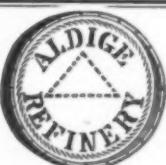
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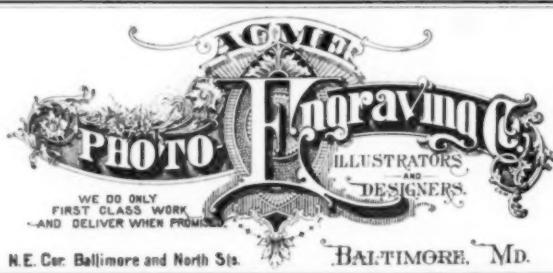
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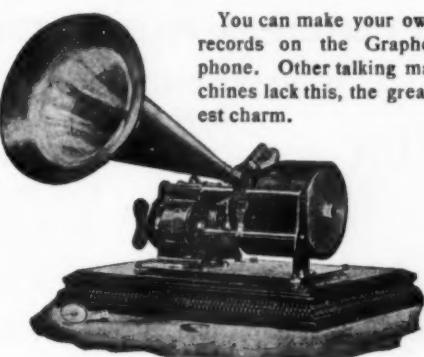
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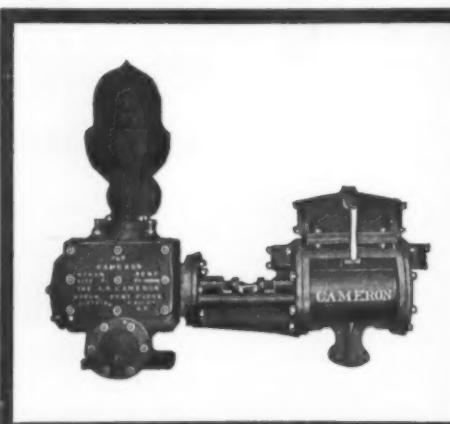
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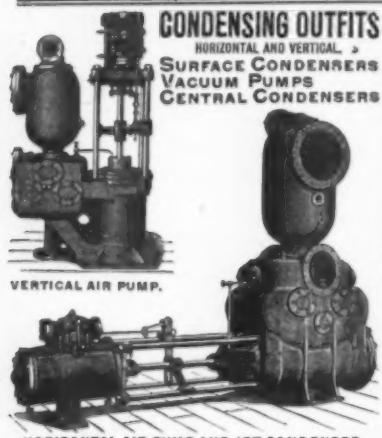
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For Towns, Cities, Mills and
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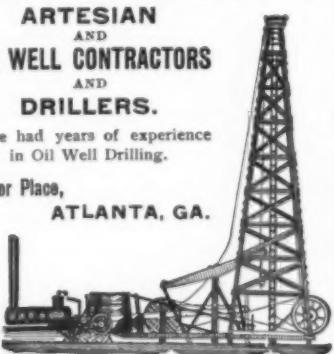
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WELL DRILLING MACHINERY,

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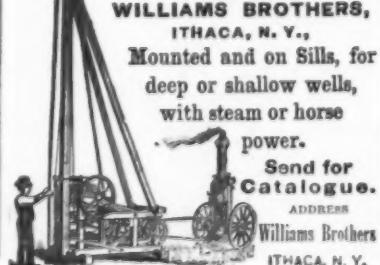
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All sizes in coils of 15 lineal feet.
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GREAT
OHIO
WELL
DRILL!

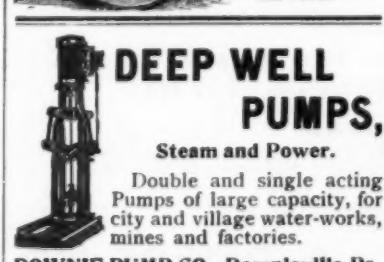
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the cuttings of the Drill at each
stroke. Drives the casing or
drills a hole under it to let it follow.
Tests the well without re-
moving tools! Runs easier than
any other and drops the tools
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High Efficiency, Easy Working Gate. Simple, Durable.

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Largest Power ever obtained from a wheel of the same dimensions.

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For Heads of 3 Feet and Upward
UPRIGHT and HORIZONTAL.

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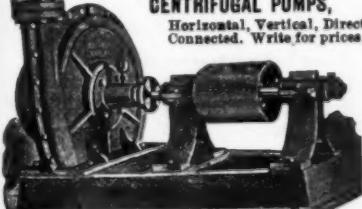
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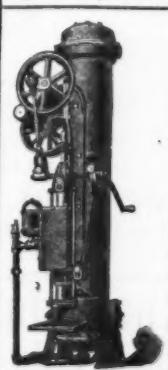
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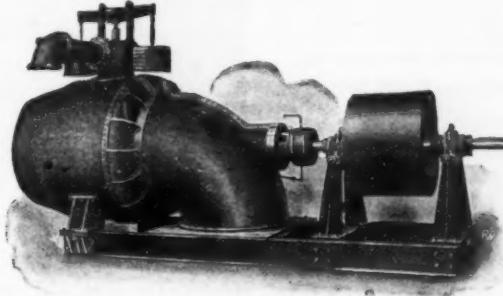
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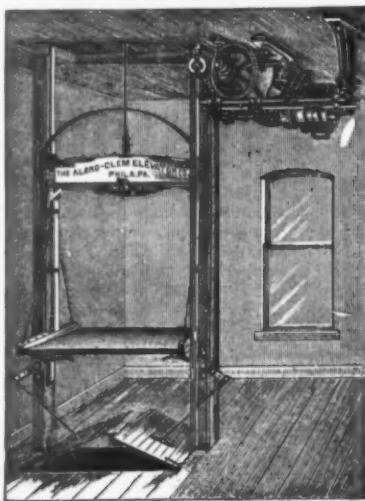
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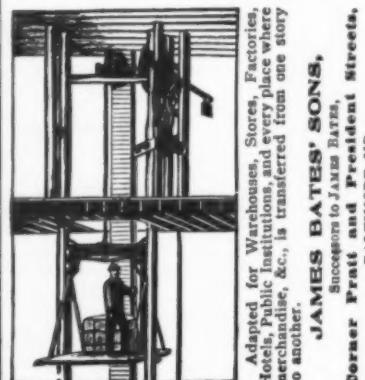
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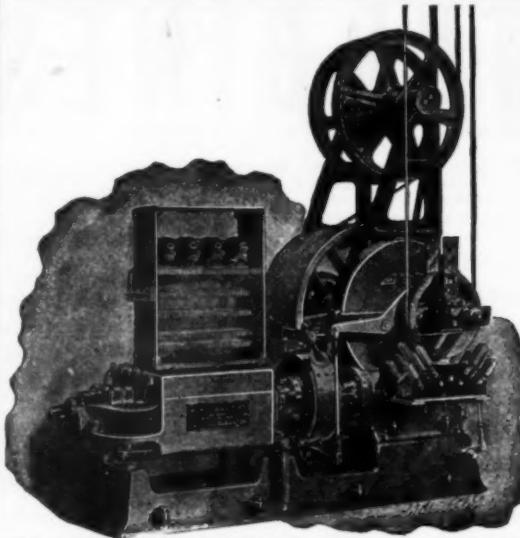
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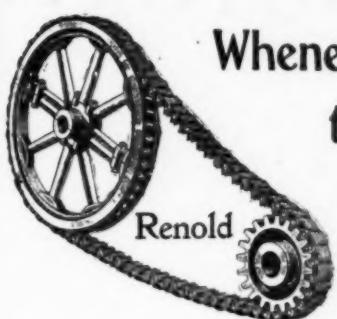
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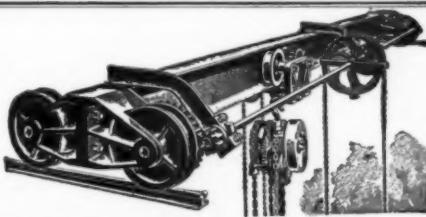
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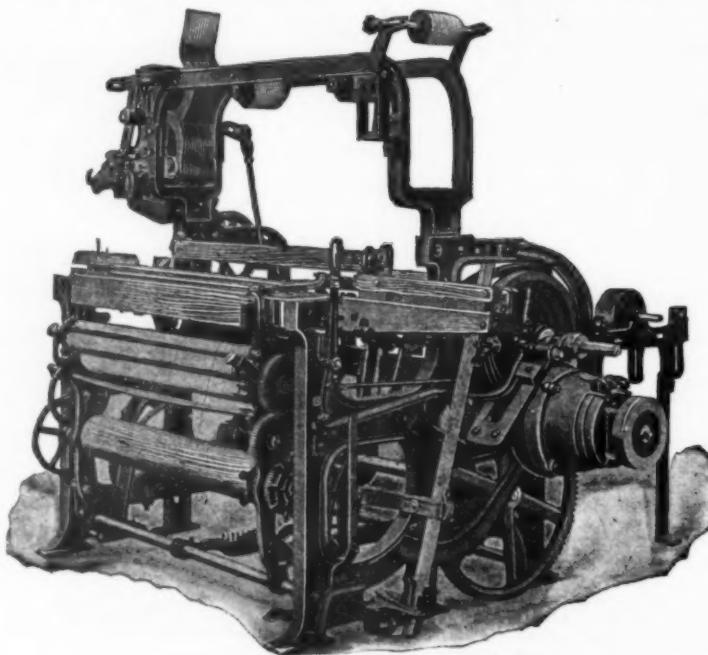
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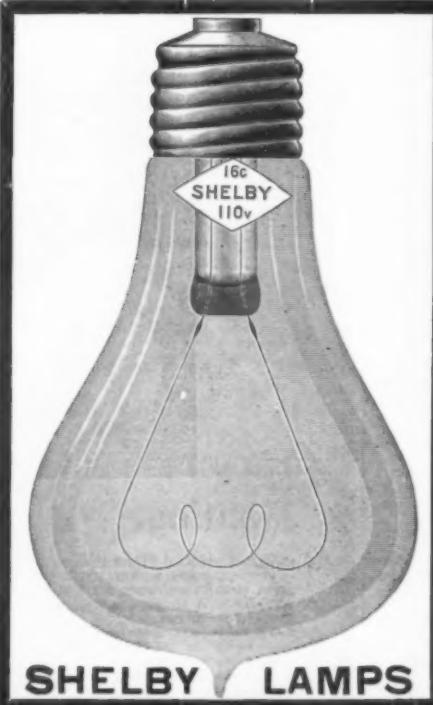
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